

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

WILBUR A. SAWYER, M.D., Secretary and Executive Officer . . . Editor
GUY P. JONES, Morbidity Statistician Associate Editor

Swimming Pool and Soda Glass. Now comes the season of the swimming pool and soda glass, each to play its humble part in the transmission of communicable disease. Each is a leading summer attraction and either is seldom thoroughly cleaned. In some California cities, the water in public natatoriums is chlorinated so that swimmers may enjoy that sport in safety. This is a wise precaution and should be adopted in every city of the State where public swimming pools are maintained. City ordinances should cover the sanitation of soda glasses. In Florida these utensils are disinfected by a standard method. At all events, there is no reason why each glass should not be thoroughly cleaned in hot water after service to each customer. Perhaps these factors, the swimming pool and the soda glass, are responsible for more cases of communicable disease among children than we have any knowledge of.

* * * * *

Keep Our Great Playgrounds Clean. California has perhaps the most wonderful pleasure grounds of any state. Mountain, river, forest and seacoast now are calling to the vacationist. It seems paradoxical that a disease like typhoid fever may be contracted in our marvelous playgrounds, yet the records of cases of typhoid fever contracted during summer vacations are indisputable. A careless convalescent, of whom large numbers go to the mountains every summer, is the source of infection for many cases. Vacationists should practice sanitation as scrupulously during their outings as at home.

* * * * *

How Miners Can Prevent Hookworm. Fifty per cent of miners who work in California mines, especially the deep gold mines, have been found to be infected with hookworm. Dr. J. G. Cumming, Director of the California State Board of Health's Bureau of Communicable Diseases, together with Mr. Joseph N. White of the United States Bureau of Mines, with the co-operation of the California

Original

Industrial Accident Commission, have recently made investigations into the hookworm problem in the mountains of California. Doctor Cumming's report and an outline of the proposed measures for the prevention and eradication of the disease are printed in this number of the Bulletin.

* * * * *

Board of Health Makes Undertakers Lose Money. The Gridley Herald says: "According to the last bulletin of the State Board of Health, the deaths from typhoid fever have been reduced in the last ten years from 30.2 to 9.7 per 100,000 population. This means that the fight against typhoid has resulted in saving 3,193 lives.

The State Board of Health should be discontinued. It has 'hurt business.' The undertakers have lost 3,193 jobs, at say \$150.00 per, amounting to \$478,950.00; the coffin factories have lost \$40.00 per, amounting to \$127,720.00; the coffin workmen who would have done the work lost probably \$20.00 per, amounting to \$63,860.00; the metal workers who would have made the handles have lost say \$2.00 per, amounting to \$6,386.00; the gravediggers have lost say \$3.00 per, amounting to \$10,579.00; the tombstone manufacturers have lost say \$100.00 per, amounting to \$319,300.00; the liverymen who might have furnished the rigs for the funerals have lost say \$15.00 per, or \$47,895.00. The workmen for the tombstone manufacturers have lost probably \$25.00 per, or \$79,825.00; the florists have probably lost \$20.00 per, amounting to \$63,860.00; the hearse drivers have lost \$1.00 per, amounting to \$3,193.00. So much are the 'after-death' losses to business caused by the board's action.

The doctors have probably lost on the average \$100.00 per, or \$319,930.00; the druggists \$10.00 per, or \$31,930.00; the nurses probably \$100.00 per, or \$319,300.00. In consequence of this the undertakers, liverymen, florists, tombstone men, tombstone laborers, gravediggers, doctors, nurses, and others have bought less clothing, automobiles, cigars, spring bonnets, ice cream sodas, tools and various other articles than they would otherwise have purchased. The business of all these industries has been directly injured by the State Board of Health.

It is plain that this body has 'hurt business' to the extent of at least \$1,872,098.00."

* * * * *

Automobile Campers and Camp Sanitation. Already automobile camping parties are seen along the highways. The importance of keeping camps clean, of preventing the pollution of streams, and burning or burying all refuse, can not be overestimated. If every one who goes on a summer vacation were scrupulously careful in all of these matters, there would be much less typhoid fever in the State. Also, now that the vacation season is opening, it is well to remind those starting on their annual pilgrimages to camps and summer resorts to be careful not to drink water from any stream whose purity may be at all in doubt, without boiling it. Sometimes the clearest, most sparkling streams, may be the most dangerous.

**Birth Registration
a Debt to Society**

As soon as a new born child enters the world, society's responsibility for his future welfare begins. To this end, all of our vast machinery for health, education and development has been provided. Our wealth has been poured out lavishly to supply every conceivable device for promoting the welfare of the child. Every possible effort has been spent in order that he may live and develop into a better type of citizen. Through orphan aid and social insurance we have even provided against contingencies arising through the death of parents, accident and other hardships. Society has done its duty well and each day sees still greater advances in providing for the welfare of the child.

In the face of these facts, can not the physician at least announce the arrival of the new born child? If society has so amply provided for, and so eagerly awaited the arrival of its charge, has it not the right to be promptly notified of its arrival? Aside from the fact that the registration of its birth is the child's first birthright, is it not the physician's unalterable duty to society to promptly register all births?

★ ★ ★ ★ ★

**A Careless Camper in
a Mountain Meadow.**

On the cover of this Bulletin is shown a picture of a typical mountain meadow in the high mountains. Melted snow, trickling down the steep rocky slopes to this grassy meadow, feed the springs which are the source of streams that finally reach the sea. There can be no natural water of greater purity than this, but a single careless camper in this meadow might be the source of an epidemic of disease in a mountain community in one of the lower valleys. He might even be the means of conveying disease to a foothill town or to one of the cities of the interior valleys. Campers in the mountains should be careful of the sanitation of their camps. The pollution of these sources is criminal, and may spread disease to many citizens.

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**Of Interest to
Mountain Residents.**

This number of the Bulletin will be of special interest to people living in the mountains of California. "Sanitation in the Mountains" will be of interest not only to those who reside in the mountain districts, but also to persons who contemplate spending vacations in the higher altitudes. It will be of interest to summer resort owners and to vacationists who may spend the summer at such resorts. Not only is sewage disposal discussed, but also the disposal of garbage and other wastes. The State Board of Health desires to encourage sanitation in the mountains wherever it may be possible. This article may be secured in the form of a reprint for general distribution.

SANITATION IN THE MOUNTAINS.

By C. G. GILLESPIE, Director, Bureau of Sanitary Engineering.

Sanitation in the mountains has received little or no attention in the past, but with the increased numbers of vacationists enjoying summer outings in the mountain districts, there has come an increased danger of the development of insanitary conditions, the purity of mountain streams being one of the chief sources of danger, from the public health standpoint.

One often hears, as an excuse for pernicious stream pollution, that "running water purifies itself." As a matter of fact, it is not the travel of water, but quiescence and light that effect its greatest improvement, while travel serves to carry virulent danger a long distance from the point of contamination before the virulence is gone.

The law is plain regarding the prevention of pollution of drinkable streams. It is a misdemeanor to violate this law. With a public more appreciative of the benefits of improved sanitation, and with increased facilities for the administration of the law in refractory violations, prospects are bright for the same greatly improved aesthetics and sanitation throughout the pleasure grounds of the State as have been found so conducive to healthfulness and happiness in rural America.

Until recent years, the importance of careful observation of sanitary regulations in the more remote sections not easily reached by train, has been deplorably disregarded. With the advent of the automobile, hardly a mountain glen is now inaccessible. This sudden change decrees that there must be a change in sanitary methods. Every privy over a stream, every cesspool spilling into a water way, and every careless defecation where the first wash of rain will carry the dejecta into a running stream, is potentially a crime against life when so many are bound to be affected. The dejecta of a single typhoid fever convalescent, carelessly disposed of, can hardly fail to leave a trail of sickness and perhaps death in its path—so great is the peopling nowadays along almost every mountain stream.

The problem of the convalescent in the mountains is serious. There are many persons whose failing health, which induced their trip to the mountains, is unknowingly but truly due to mild typhoid fever or the other water-borne diseases. There are also those who have recently recovered from more or less severe attacks of typhoid and who come to the mountains for recuperation. Both are apt to be found anywhere in the mountains in its attractive season.

On the vast National Forests, the United States Government, through its Forest Service, and the State Board of Health through its sanitary inspectors, the Bureau of Sanitary Engineering and local health officers, are zealously working together in conserving the health of the mountain public. In the few pleasure regions elsewhere, the State Board of Health carries on this work with its own facilities.

As a most important part of the work, extensive placarding is being carried on as rapidly as possible, to warn the public of streams which

are dangerous, to prevent pollution of others and to keep camp sites clean and free of rubbish. Some of these placards read as follows:

**Leave your camp as you would like to find it.
Burn or bury all refuse. Keep the pleasure grounds
of America clean.**

DANGER

Do not drink this water without boiling it.

Such a warning means what it says and should be heeded. The placard is put up only in cases of known danger.

"POLLUTION OF STREAMS IS UNLAWFUL.

Violation of the STATE SANITATION LAWS is a misdemeanor, punishable by FINE or IMPRISONMENT. Within the National Forests the United States Forest Service aids the State in the enforcement of these laws.

All persons on the National Forests are warned to COMMIT NO NUISANCE whereby a stream may be defiled. BURN or BURY all camp refuse. Keep your own camp clean and report all violations of the laws to the Forest Ranger.

**CALIFORNIA STATE BOARD OF HEALTH.
UNITED STATES FOREST SERVICE."**

DUTIES OF INSPECTORS AND FOREST RANGERS.

It is the explicit instruction that such representatives of the State Board of Health shall co-operate with and assist the public in the most cordial way, giving service based on sound judgment where they find corrective measures necessary. This attitude, however, should not mislead the public into a belief that their powers are not drastic. The law provides a definite program of procedure in prosecuting violations of the stream pollution and nuisance laws of the State. If friendly advice is not accepted, the Inspector or Forest Ranger, duly empowered by the State Board of Health, first serves written notice on the party or parties actually responsible to remove or abate the condition in question within a stipulated reasonable time, on penalty of punishment as prescribed by law, or show cause why the demand should not be complied with, and, second, refers the entire facts to the District Attorney for prosecution if satisfactory action is not taken within the time set.

The stream pollution acts of the State aim emphatically at preserving the pristine purity of drinking waters. The law plainly forbids the admission to streams and water supplies of human excreta in any form, whether from privies, cesspools, septic tanks, toilets or sewers; forbidding, also the pollution of such waters by washing and wastes from pig pens, corrals, slaughterhouses, barns, etc.; forbidding, also, the carcasses of dead animals to lie in streams or on lands which drain easily therein; forbidding live stock to have access to drinking water supplies; and forbidding swimming in drinking waters or waters apt to be used for this purpose. The nuisance laws of the State relate to the preservation of pleasing landscape and surroundings, in so far

as they may be marred by the act of man. The term "nuisance," sometimes hard to define, relates to conditions offensive to the senses and to the comfortable enjoyment of life by any considerable number of persons. Where a single individual is affected by a particularly repellent condition, this, too, is defined as a nuisance. Judgment on the seriousness of many nuisance offenses, especially those not concerned with the admission of sewage and human dejecta to streams used or apt to be used for drinking purposes, often tempers the decision on the stand to be taken. On the exclusion of human wastes in any dangerous form from waters for human use, health preservation is at stake, and there can be no temporizing or excuse for the facts. Prosecution swiftly follows failure of effective correction.

As intimated above, the work of the State Board of Health and the Forest Service is primarily constructive, and it is desired in this pamphlet to show how health and greater enjoyment of life in the mountains may be conserved by simple and inexpensive structures and precautions in sanitary ways, rather than to elaborate on the police powers of the State Board of Health.

WATER SUPPLY.

In most instances, water supply can be pumped from a nearby spring, well or unfrequented stream. The main objects are unfailing flow and unquestioned purity. A careful examination of the vicinity or of the watershed, as the case may be, to determine whether its quality is apt to be affected by presence of human beings, coupled with bacteriological analyses of the water, will establish quite definitely whether the water is safe. Clear waters are too often the most dangerous. The State Board of Health is in position to make such analyses at no other cost to the individual than for expressage. Sterilized bottles in which to collect the samples are sent out in answer to requests describing the surroundings and stating the reasons for desiring the analyses.

SANITARY PRIVY.

If running water under pressure is available in the dwelling, many conveniences of city homes, so much to be commended and desired, are possible—hot and cold water in baths, washstands, laundries, toilets, etc. The cost of such a system averages about 35 dollars per fixture. Often the item of expense or lack of running water in the home makes such conveniences impossible. The difficulty of sanitary sewage disposal too often is an argument against such an installation because of the large amount of troublesome wastes produced. There are many locations which, because of peculiar topography, heavy adobe soil, high ground water level, or a dense rock substratum, do not lend themselves to easy disposal of sewage. In such cases a sanitary privy is highly advised in place of a flushing toilet requiring a cesspool or septic tank.

As ordinarily built and cared for, privies are foci of disease. It is not unusual to see a privy carried on joists directly over a stream or located so near its bank that virulent matter seeps directly into the stream or in time fills up the vault and overflows. Sometimes they are located so near to wells that the water therein is continuously polluted. In many cases privies are the most poorly cared for structures on the

premises. Doors may be open, off, or hanging on one hinge, allowing flies to enter freely. The reputation and habits of the common house fly are too well known for further comment. The difference in cost between a sanitary privy and one as described above is small, and by all odds the sanitary one is the best investment when doctor bills, health and that general air of prosperity and satisfaction are taken into account.

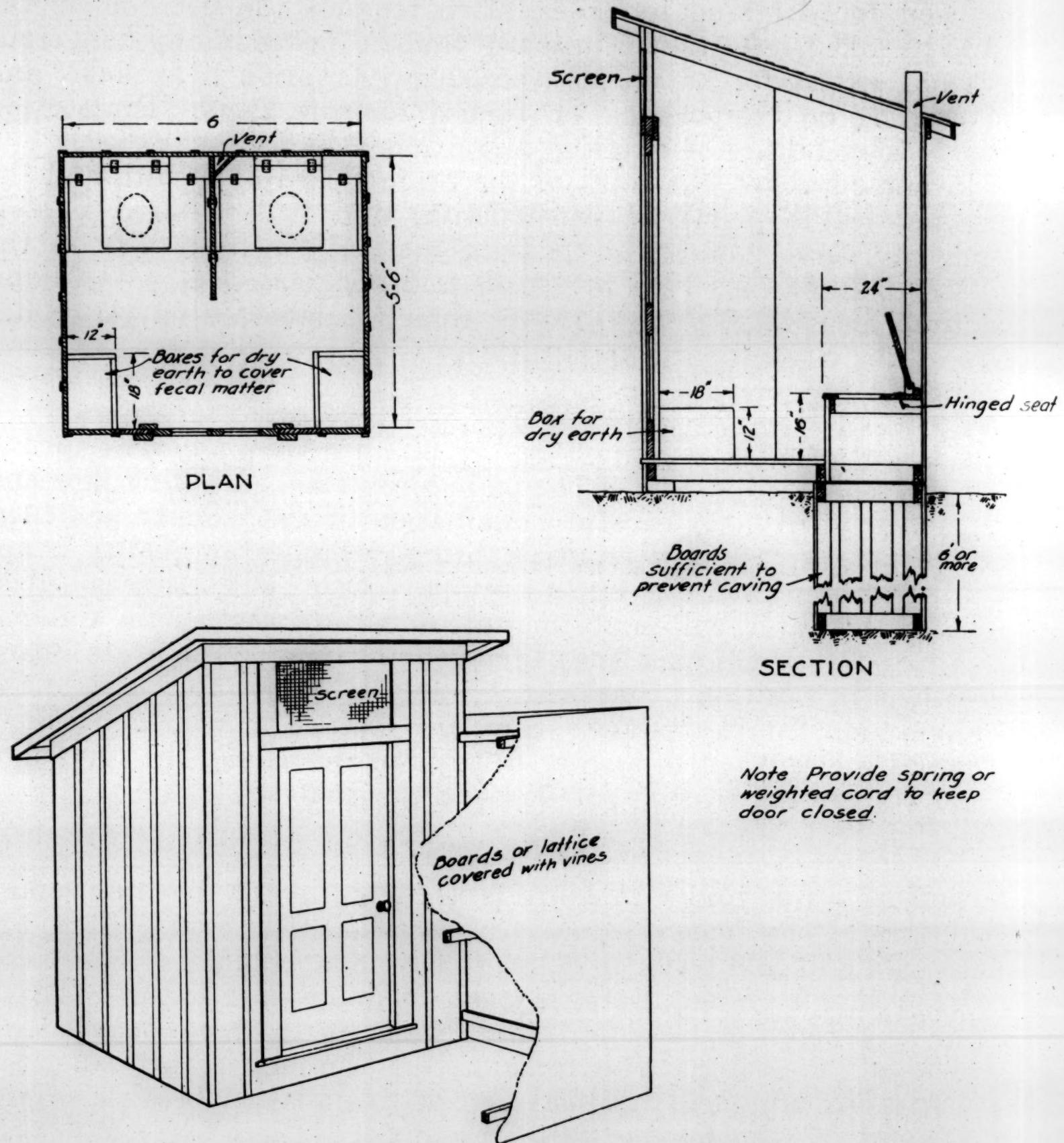


FIG. I. Privy Showing Important Features.

The better appearance given these structures, naturally the more likelihood that they will be kept clean and odorless subsequently. There is small incentive to keep a tumbled-down shed affair attractive. Outside, the building should be well obscured with a hedge or lattice work practically surrounding it, on which evergreens and preferably sweet-smelling vines should climb. Ivy and honeysuckle, jasmine or roses are good combinations of trailing vines for the purpose. Material for the structure is usually rough boards, though surfaced boards,

painted, or at least whitewashed inside and out, make a better appearing structure at only slight increase in cost. The entire seat, as well as the lid over the hole, should of course be surfaced and painted with a glossy, waterproof enamel paint so as to be easily cleaned. For ventilation, a small stack in the corner running from under the seat level to above the roof is desirable, as well as ventilator opening near the roof or over the door covered with a copper or galvanized screen of a fine enough mesh to keep out flies. A good house door with a spring-hinge to keep it closed is preferable to a homemade one on the general score of improved appearance. If one is familiar with concrete construction, the floor of the privy may be a smooth surface concrete slab, easily flushed off with water. The hole should be large enough to hold about three years wastes. For the average family, a hole 2 feet, 6 inches wide, 6 feet long and 6 to 8 feet deep is ample. The hole should be sheeted and braced to prevent caving in of the sides. A barrel or box of dry earth, ashes or lime, should be kept in the corner so that defecations may be covered occasionally, without spilling the earth or ashes over the seat. Having the entire seat hinged and using a scoop similar to a grocer's sugar scoop are helpful. For hotels and resorts several seats are needed, approximately one seat for every 10 to 20 guests. Partitions may be put up to separate the seats with a separate swinging door to each, as in railway stations. A plan for a privy with two holes and a partition, but without separate doors to the compartments, is shown in Figure I. An individual residence would require only a single unit of the privy shown, whereas hotels and summer resorts would need several, and in addition one of the compartments might be converted into a urinal. Any one handy with wood work can build such a structure. The cost of a privy as shown is about 20 to 30 dollars.

The location must be chosen carefully. It should be as far as possible, and never less than 100 feet, from streams and wells. A good many rock formations are so fissured, or soils so gravelly and open, that greater distances than this from wells and streams are needed for their proper protection.

SEWAGE DISPOSAL.

Flushing toilets and other sanitary conveniences about the household or summer resort are of course highly desirable and have been installed freely in the mountains, too often without proper handling of the resulting sewage. A complete domestic installation for sewage disposal for an individual family, comprising a septic tank, a dosing tank and subsurface irrigation system, should be installed for about 100 dollars. In the case of hotels this cost might run up to 200 or 300 dollars.

Except in the most troublesome soils, where it is sometimes advantageous to keep separate the bath, kitchen and any more or less harmless wastes, from the toilet wastes which are distinctly harmful, treating the latter and omitting treatment of the former, it is usual to treat all wastes together. If the handling of the sewage is effective there should be no odor or objection in the vicinity, and, primarily, the drinking water supply will not be affected. Direct entrance of toilet flushings, or mere septic tank effluents, to streams is under no circumstance to be excused. The only simple safeguard is the prevention of entrance

of sewage therein, except after seepage and filtering through intervening soil, which form the big line of defense for streams and wells. Disposal in soil remains as the standard alternative for good ultimate sewage disposal from small institutions. Disposal on land generally does not receive enough care to prevent offense, and subsurface disposal is almost without exception to be preferred.

LEACHING CESSPOOL.

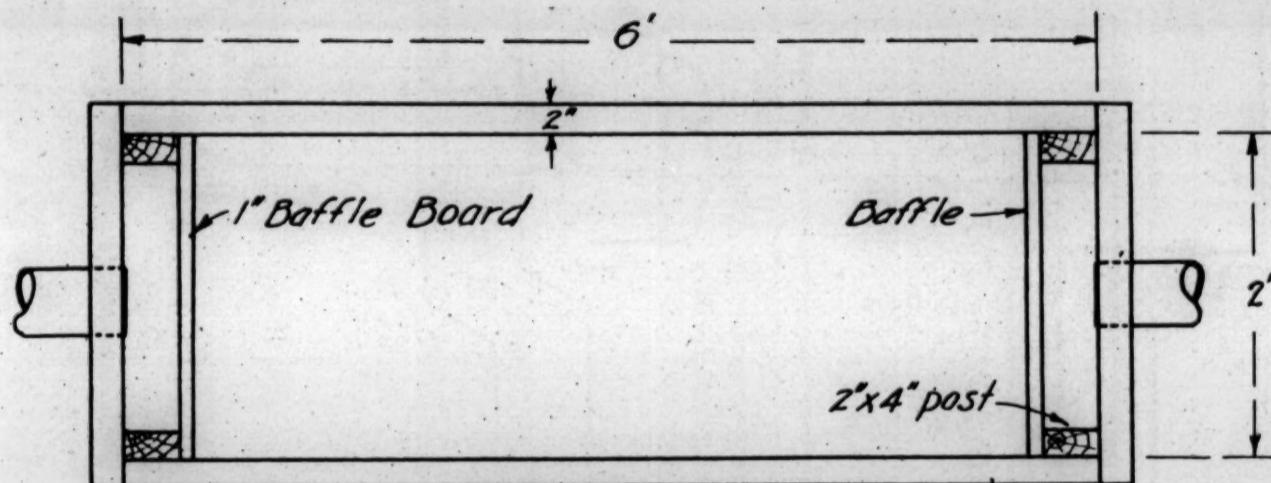
The leaching cesspool accomplishes this purpose of diffusion through soil fairly well, at the same time allowing the solids to settle out as in a septic tank. Cesspools are usually small holes ranging from 6 to 30 feet deep, sometimes boarded or rip-rapped with brick. With prolonged use the soil becomes choked with sewage matters and in time overflows. In adobe soils cesspools overflow frequently. The workings of gophers and moles also contribute to the early filling up and overflow of cesspools. Their cleaning out or rebuilding is a matter of considerable effort and expense and for this reason alone many people prefer a more substantial installation. From the health standpoint, a cesspool is a most intense focus for pollution of wells, and sometimes gives rise to serious mosquito breeding. Cesspools which stop in gravel to get rid of the liquid are extremely dangerous because of the easy travel of pollution, sometimes several thousand feet through such gravel, to shallow and even deep wells. Taken all in all, a cesspool is not popular and may be a considerable menace to health, especially where overflows occur frequently and wells are affected.

STANDARD DOMESTIC SEWAGE DISPOSAL.

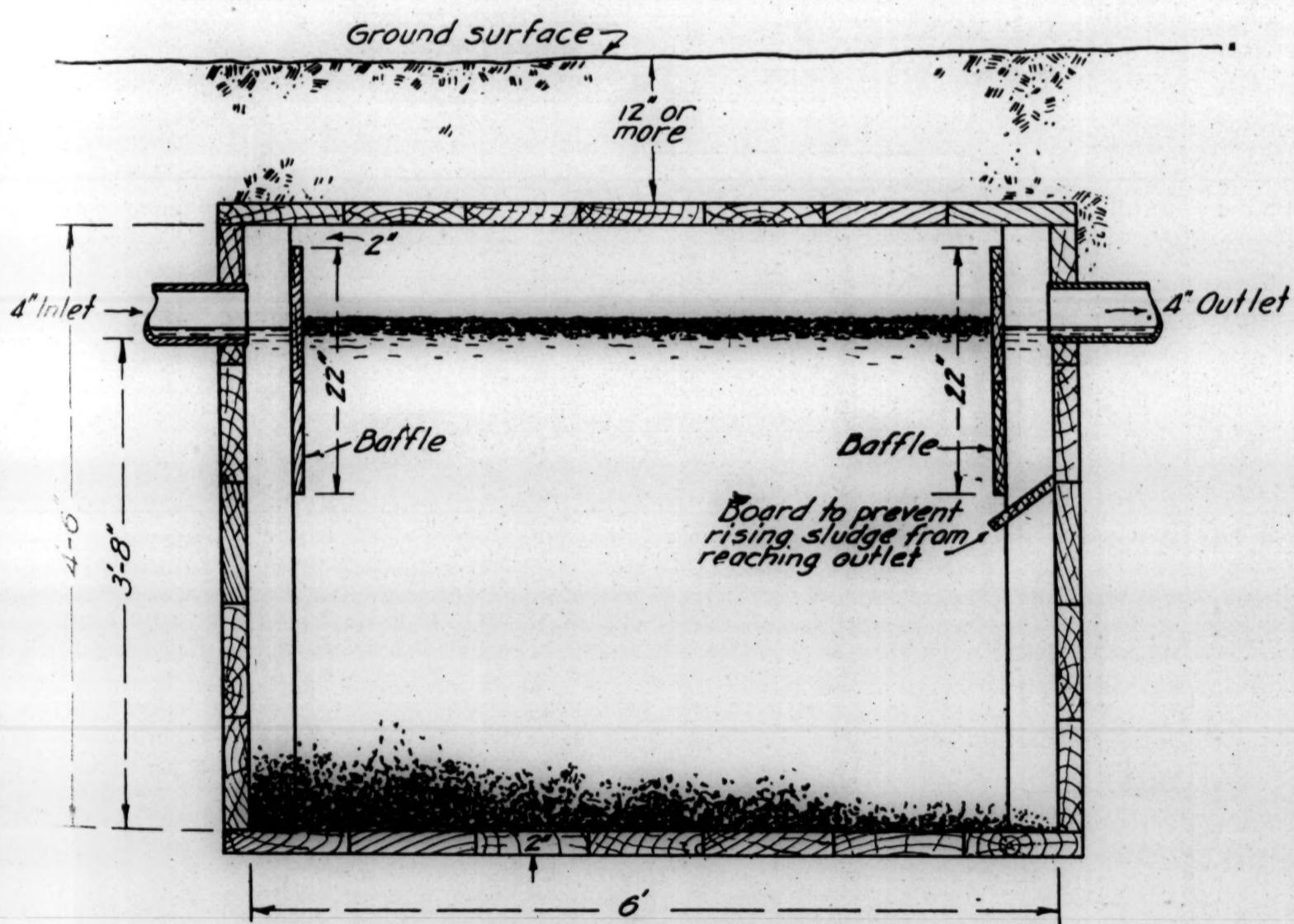
In the present state of the art of sewage disposal, where the wastes must be handled by the owner, some form of settling tank with a dosing tank and subsurface irrigation scheme is as satisfactory as any means of sewage handling available. The function of the tank is primarily the removal of the sewage solids, leaving an effluent which is practically liquid and hence easy of disposal by seepage into the soil.

SEPTIC TANK.

The septic tank is a simple and cheap means of accomplishing a fair degree of clarification without producing too great trouble in handling the deposited solids which undergo digestion in the tank yet ultimately accumulate to a point where the tank must be abandoned. This requires from two to five years and is not too great a burden on the householder, even if the tank is rebuilt. Two designs for the ordinary household are shown, one being a cheap redwood structure, easily built and sufficiently permanent to last until the tank will need cleaning, when it may be abandoned. Concrete as a building material is much more permanent



PLAN
WITH COVER REMOVED



LONGITUDINAL SECTION

FIG. II. A Cheap Wooden Septic Tank for a Household of not over 10 Persons.

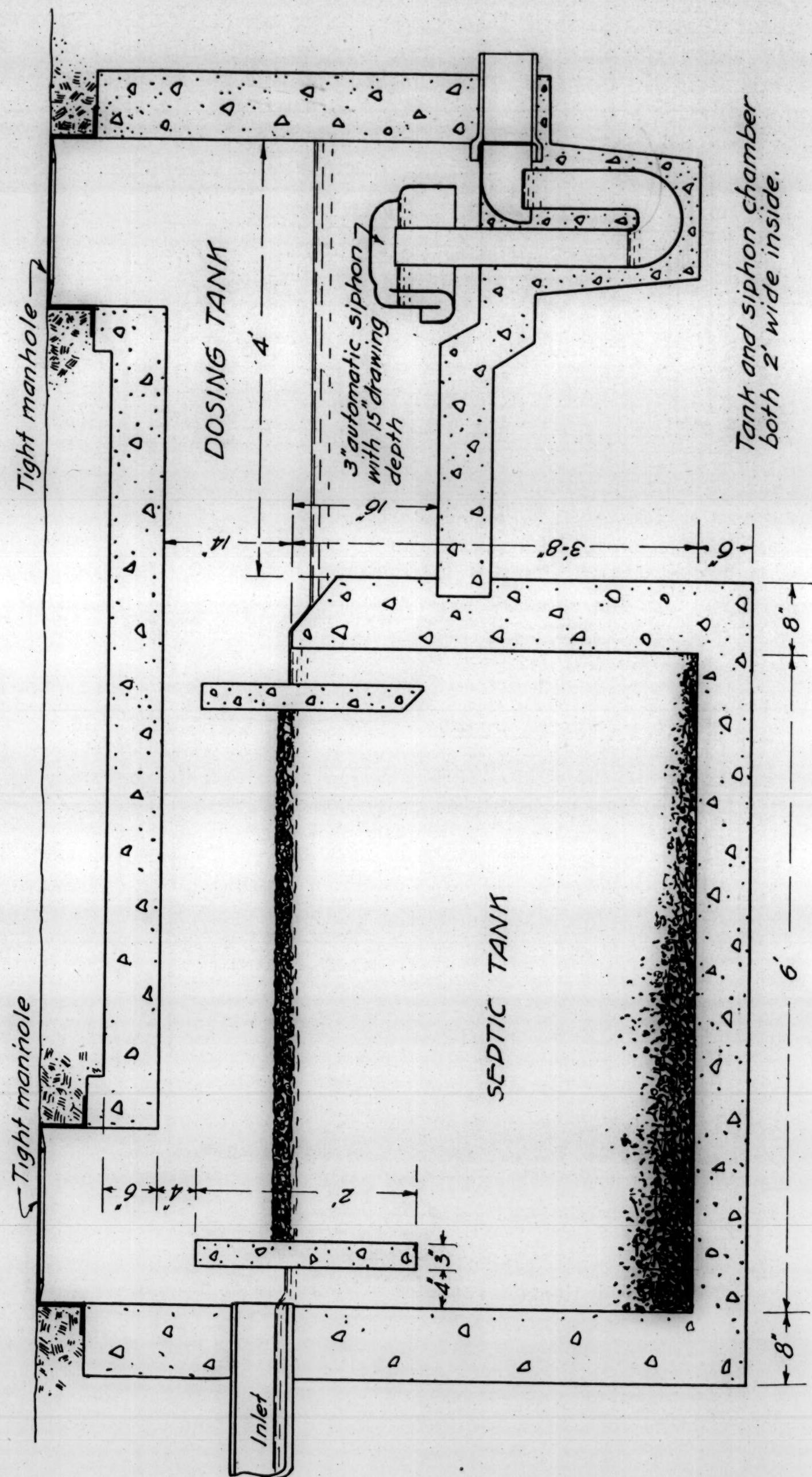


FIG. III. Concrete Septic Tank and Dosing Chamber Attached, for Household of not over 10 Persons.

May, 1916]

SANITATION IN THE MOUNTAINS.

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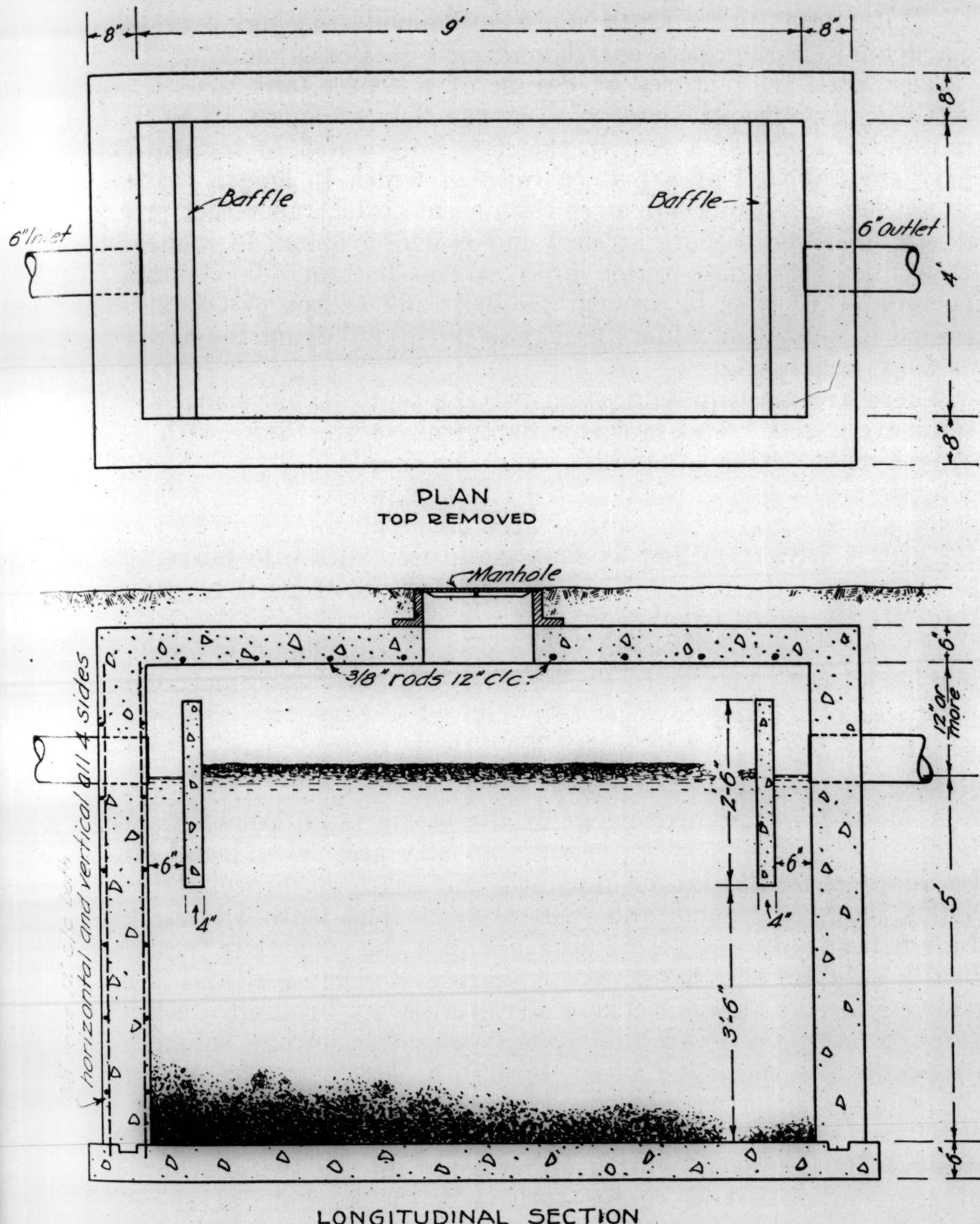


FIG. IV. Septic Tank for a Hotel Accommodating not over 50 Persons.

and is often preferred. Where soil leaching is difficult and a dosing tank is needed, the concrete septic tank shown in Figure III is to be preferred. The walls of the tank are not intended to be reinforced with steel rods and are made sufficiently thick to be strong enough, even with homemade concrete. In Figure IV is shown also a typical design of septic tank for a small hotel accommodating not over 50 persons. Larger hotels require a correspondingly larger capacity.

The essential features of design of a septic tank are: a storage or settling period equivalent to a sewage flow of about 16 to 24 hours; a minimum depth of 4 feet to the flow line, which in institutional plans may amount to 6 or 8 feet; a ratio of width to length preferably one to not less than four nor more than eight; inlet and outlet piping at the flow line; scum baffling at each end reaching about 18 inches below the flow line; a sludge outlet pipe at the bottom for cleaning, if fall permits, and cover to prevent accident and escape of odors. The tank shown is somewhat wider than that calculated from the above rule, for ease of excavating.

There are many modifications of the septic tank, some of which are commercialized. The multicompartiment septic tank, with or without gravel, is of little advantage over the simple design. Though multi-compartment septic tanks deliver a somewhat clearer effluent at the start, the gradual filling with sludge nevertheless occurs and approaches the outlet. Stone filling as sometimes used in septic tanks acts merely as a strainer; the removal and cleaning of the stone is too objectionable to offset the small advantage of straining.

It must not be understood that a septic tank effluent is free from odors nor harmless. As a matter of fact, it is usually extremely odorous and practically as dangerous as the original sewage.

IMHOFF TANK.

A more recent improvement of the septic tank, known as the Imhoff tank, now used almost universally in city and town installations, may be adapted to the larger domestic installations, especially in schools, hotels, summer resorts and institutions. The main advantages of the Imhoff tank over the septic tank are that the effluent is fresh and practically odorless and the sludge is more easily handled and is usually as odorless as soil humus. These advantages are brought about by a two-story construction. In the upper story the sewage solids settle out, dropping into the lower story through a bottom so arranged that when the solids digest the odorous particles of decomposition can not find their way back into the settled sewage and thus can not foul the sewage itself. The importance of keeping separate the two distinct processes of sedimentation and sludge rotting is the keynote of success of the Imhoff tank.

A suggested design of Imhoff tank for a small hotel, accommodating not over 50 persons, is shown in Figure V. Where fall does not permit, the sludge piping shown is quite useless and cleaning is best done by the use of a bilge pump with a 2-inch or 3-inch rubber hose suction. Capacity of flow chamber should afford storage of the day flow of sewage equivalent to about three hours. Ratio of width to depth for the walls of flow chamber should be about 1 to 1.5. The bottom of the upper chamber should have a slope of about 1.2 on 1. The angle projection

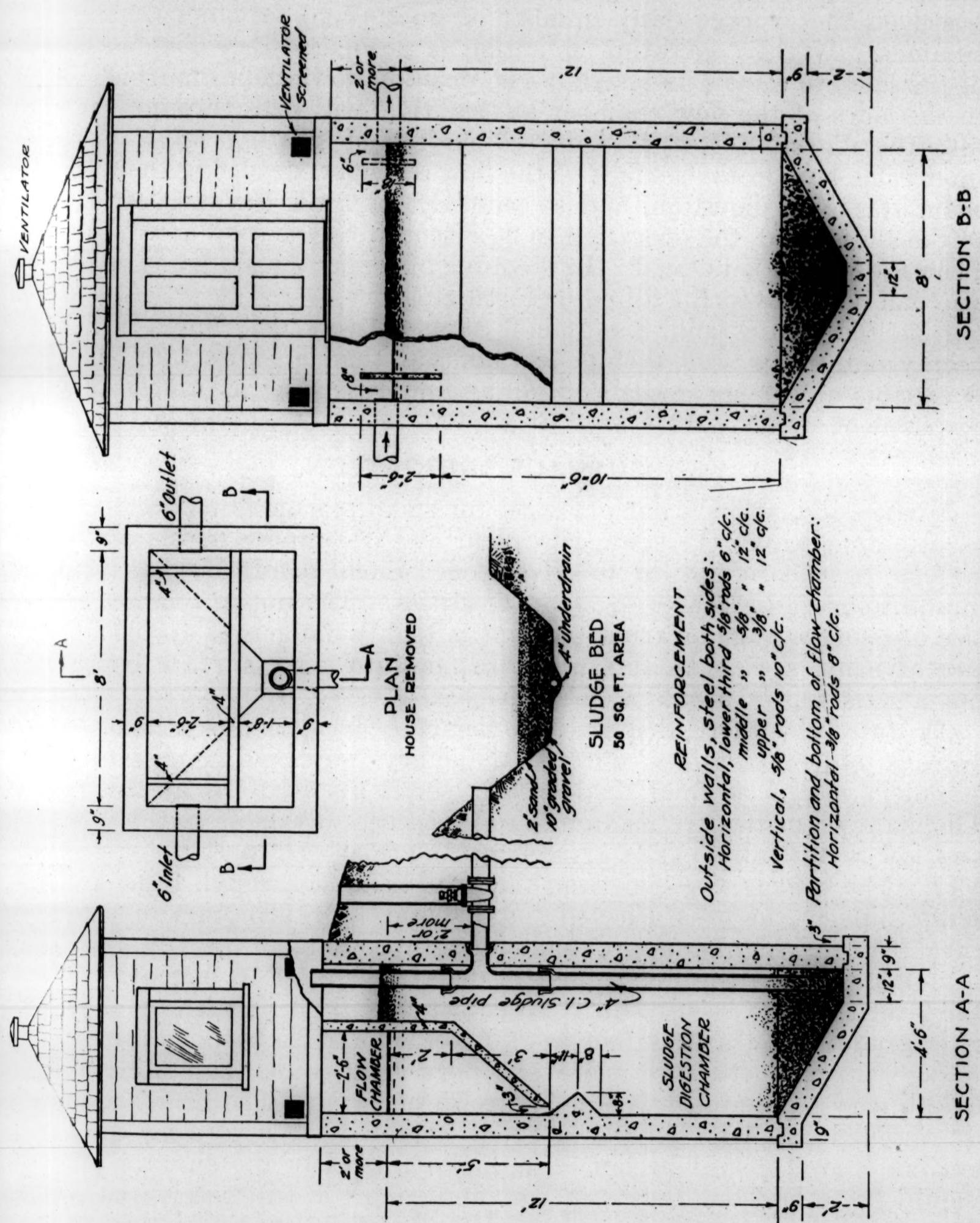


FIG. V. Imhoff Tank for a Hotel Accommodating not over 50 Persons.

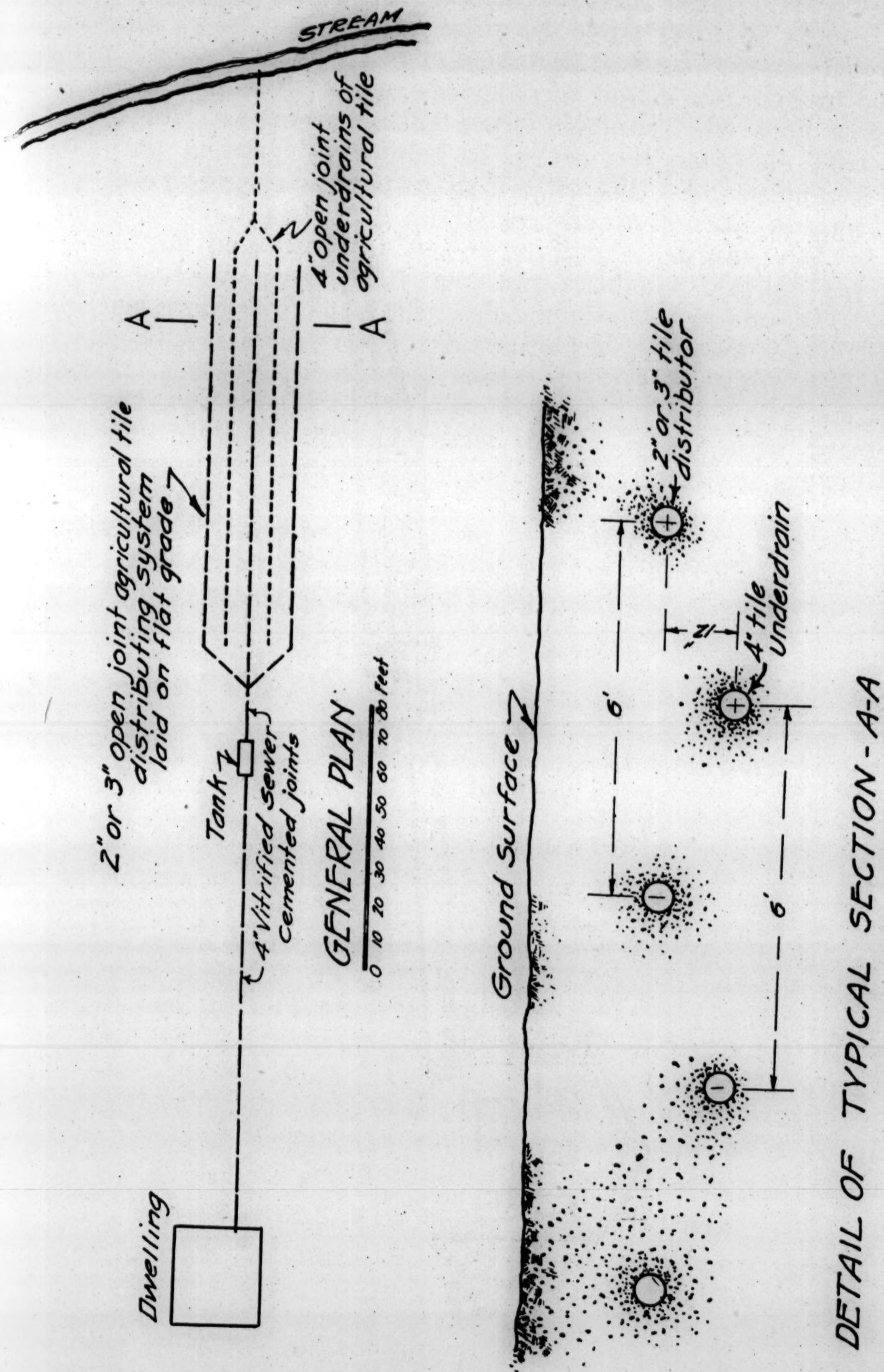
below the slot should reach beyond the slot at least 5 inches. Inlet and outlet should be baffled as shown. Depth of tank should be at least 15 feet below water level. Bottoms should be hopped toward the sludge pipe with slopes at least one on two. The total sludge capacity up to within two feet of the slot may be estimated at 3 cubic feet per person, based on the average daily number of guests and servants during the summer. Weekly operating attention is needed, directed at agitation of the scum to relieve its buoyant gas, pushing down deposits which cling to the sides of the flow chamber so that they will pass through the slot into the digestion compartment, skimming off floating solids back of inlet baffle and on the surface of the flow chamber, dropping them in the scum stack for digestion, and at monthly intervals drawing off sludge to the sludge bed, the operation to be discontinued as soon as a foul odor from the sludge is noticed. In a couple of weeks the sludge is spadable and can be removed for filling or fertilizing.

Like the septic tank, the Imhoff tank delivers an effluent which is highly dangerous, and though less odorous than a septic tank effluent, is capable of further decomposition and odor production unless quickly disposed of.

SUBSURFACE IRRIGATION.

Surface irrigation is not practical for small sewage flows because lack of attention leaves the sewage to pond and decompose in the air when serious odors are apt to be given off. Such ponds become prolific mosquito-breeding places in many localities. The not uncommon practice of using sewage on truck gardens is highly dangerous and the practice of using sewage in this way also tends to make surface irrigation not a satisfactory means of final disposal.

As stated elsewhere, disposal by subsurface irrigation overcomes these various objections in a quite satisfactory way and represents the standard means of final disposal for small installations at this time. The main requisites are maximum soil looseness available in the vicinity and low water table. Tile arrangements are shown in Figures VI and VII. The sewage is piped from the settling tank through tight-jointed sewer pipe to the area selected for disposal. Branch lines of agricultural tile, having an approximate length equivalent to 100 feet per person for 2-inch tile, to be used in dense soils, and 60 feet per person for 3-inch tile, to be used in loose or sandy soils, laid with open joints on a grade of not over 1 foot in 200 feet, should be used to spread the sewage through the soil mass. In very loose soils these figures for length may be diminished as much as 75 per cent. The lines should be as ramified as possible, spaced from 2 to 6 feet, according to space available, and should be not over 15 inches below the surface. They should be so laid out that each line and each tile will receive an equal flow of sewage. On sloping ground long lines laid approximately on the contours are preferable. In poorly-drained soils, a similar system for drainage, laid a couple of feet below the distributors and half way between, should be provided, leading to a natural water way or ditch. In sandy soils, and where the drainage water enters a drinking supply, the underdrains are not necessary, and should be omitted because of the small protection often afforded by short soil travel between the distributors and the drains.



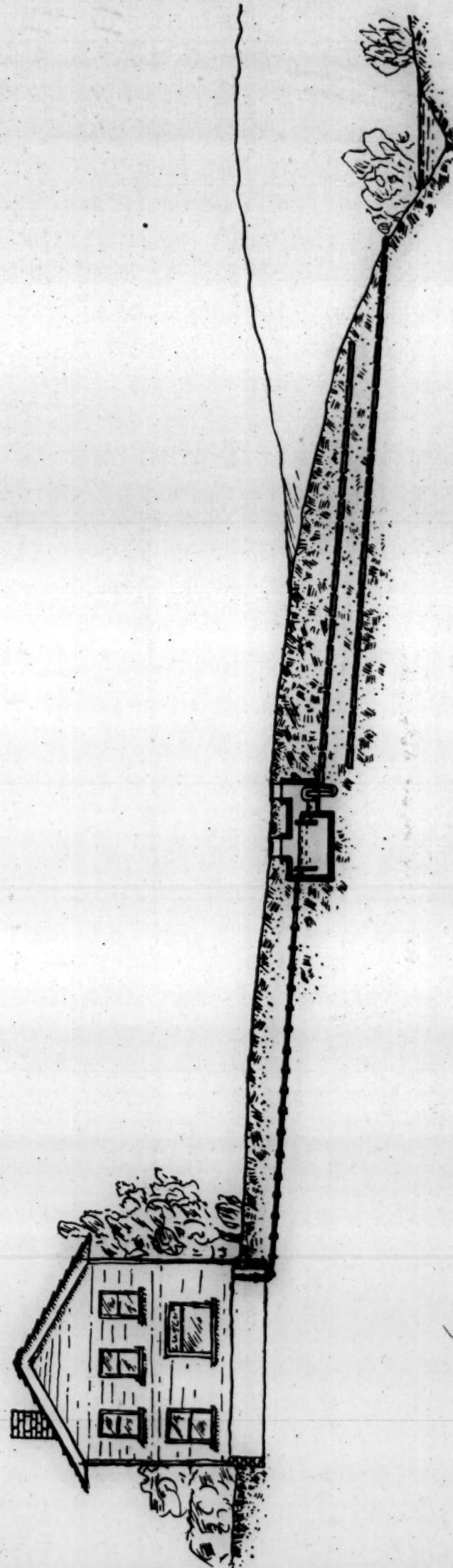


FIG. VII. Typical Sewage Disposal by Subsurface Irrigation.

DOSING TANK.

In any subsurface system, rest periods, when no flow whatever reaches the distributors, are necessary to allow the soil to "breathe" and freshen. In small households such opportunities are had nearly every night, at least sufficiently so that in loose soils the soil retains its vigor. When the soil is heavy, a small dribble is enough to keep it water-logged and even in light soils or sand, the sewage from hotels and institutions runs practically all the time, causing early clogging. In such cases it is essential that means be provided to insure rest periods. This is best done by the dosing tank, shown in Figure III. An automatic siphon is installed in the tank which discharges only when the sewage leaving the septic tank has filled the dosing tank to a certain level, at which point the contents flush themselves out suddenly through the siphon into the tile system. When the tank empties the siphon seals and the tank again fills. Dosing tanks for residential purposes should be made to flush at least two or three times a day. For hotels and resorts, siphon discharge should occur more frequently, say every hour or so. Siphons and data on dosing tanks should be obtained from sewer appliance companies manufacturing siphons. A type of siphon free of moving parts and automatic should be selected.

A dosing tank requires about two feet fall. When this can not be obtained, it is sometimes desirable to have a duplicate system of distributors, changing the sewage flow from one to the other by hand, daily.

LOCATION OF WORKS.

It is necessary to emphasize care in locating such sewage devices as have been described above so as to have a pleasing layout and to locate all works as far from wells, streams, houses and traveled highways as possible. Privies especially should be made attractive.

GARBAGE INCINERATORS.

As an improved means of disposal of burnable garbage and kitchen wastes, especially around hotels and summer resorts, the incinerators shown in Figure VIII are put forth as suggestions. Incinerators of this size will care for the garbage of 150 to 200 persons. The clay incinerator has the advantage of cheapness. Clay is piled around the barrel, and when dry a fire is built inside which burns the barrel, leaving a burned clay shell. The vitrified sewer pipe stack is easily constructed, but such large size of pipe may not be easily obtained in most localities. Very wet garbage can not be burned easily. Burial or feeding to pigs is often possible with such garbage.

STABLES, PIG PENS AND CORRALS.

The temptation to locate these structures close to a stream where drainage is best always leads to an offensive condition, especially in small streams. They should be located as far as possible from the stream and their drainage intercepted in a small ditch, disposing of the drainage caught on drainable land.

CAMPS.

Permanent camps, used year after year, should have provided a good sanitary privy, well built and carefully located. Temporary camps

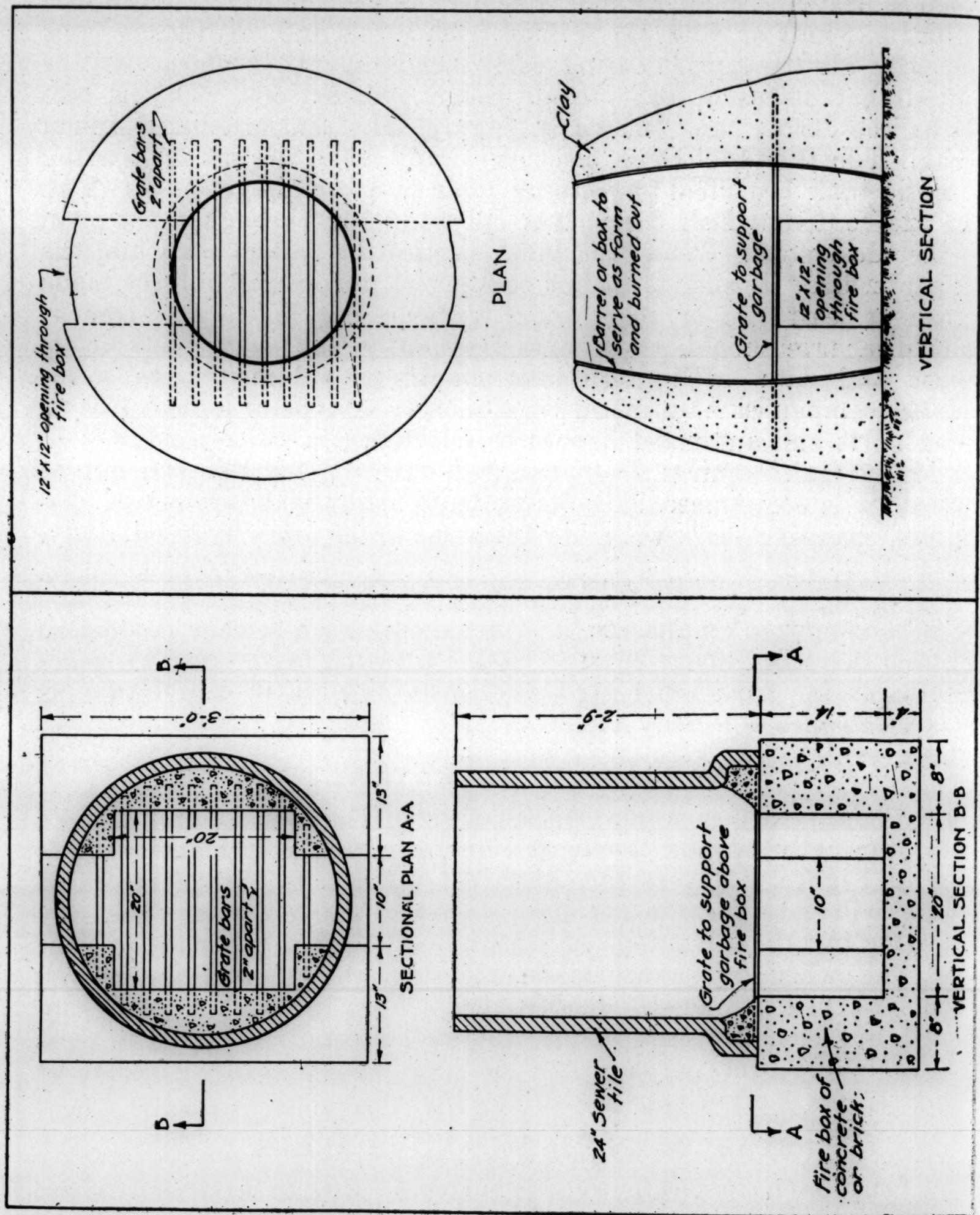


FIG. VIII. Suggested Types of Garbage Incinerators for not over 200 Persons.

may make use of a trench or pit, to be filled in when abandoned. Unsightly trash, papers, rubbish, old clothes, etc., should be burned before breaking up camp. Tin cans can easily be disposed of in some hollow or trench. A barrel or box handy around the larger camps, on which may be marked, "Please Throw Your Garbage and Papers Here," is an incentive to public-spirited people to preserve the attractiveness of the mountains.

CONCLUSIONS.

It is the explicit purpose of the State Board of Health to encourage every effort at improved aesthetics and better sanitation, especially where they relate to the health of the community, and to prosecute if necessary every violation of the Public Health Act. In the National Forests invaluable co-operation between the United States Forest Service and the State places at the disposal of the public the greatest assistance and benefit possible. Requests for advice will receive the earnest attention of the State Board of Health, and in many instances field advice, so much to be desired, will also be possible when other problems warrant representatives going into the vicinity in question. In other cases, reliance must be placed on the best advice obtainable. In this State especially, the field of sewage disposal has given rise to many patented devices for the purpose, practically all of which are without merit and has attracted many engineers ignorant of fundamental principles, whose work misleads the public in what constitutes proper sewage disposal. One of the most important functions of this bureau is to see that projects and schemes for sewage disposal and water supply have genuine merit. Aside from the necessity for compliance with the law, it is for the benefit of those concerned that plans be submitted for the opinion of this bureau prior to construction, and that the construction be carried out strictly in accordance with approved plans. If this is not done, owners run a considerable risk of being compelled to abandon a plant because faulty in design or not adapted to the requirements.

Before long an economic significance will be attached to sanitation in the mountains, and it will be of such magnitude that there will be no attraction of summer visitors to untidy or unsightly premises or to regions where the streams are reputed as unsafe. Aside from the saving of life and the contributing to happiness, therefore, it will be well for those who commercialize the attractiveness of the mountains to set an example in these matters and aid energetically in inducing others to follow.

PREVENTION OF HOOKWORM.

By JAS. G. CUMMING, M.D., Director Bureau of Communicable Disease, California State Board of Health, and JOSEPH H. WHITE, United States Bureau of Mines.

Three agencies: the State Board of Health, the State Industrial Accident Commission, and the Federal Bureau of Mines have joined their forces in a campaign against hookworm infection in California mines.

Because hookworm infection is a communicable and easily prevented disease, the State Board of Health is desirous of stamping it out.

Because hookworm infection may be considered an industrial injury, the Industrial Accident Commission is desirous of stamping it out.

Because hookworm infection is prevalent among miners, and as it is known that infected miners carry the disease from the mines of one state to those of another, the Federal Bureau of Mines is desirous of stamping it out.

CALIFORNIA STATE BOARD OF HEALTH.

BUREAU OF COMMUNICABLE DISEASES.

BERKELEY, CALIFORNIA, May 1, 1916.

To the Miner:

Have you ever heard of hookworms? We have examined about 1,000 of your fellow workmen and 50 out of every 100 examined have this disease. It is an even bet that you as a miner have hookworms.

Hookworms do not respect nationalities. We have found them in Americans, Englishmen, Austrians, Servians, Italians, Spaniards and others.

Hookworms do not respect jobs. We have found them in the foremen and shift bosses as well as in the miners and muckers. Even the general manager of one mine was found infected.

Have you any idea of what the hookworm is?

The hookworm is a small worm about one-half an inch long and about as thick as a pin. One miner out of every two has many of these worms in his intestines.

Upon what do these worms live? They live on your blood!

What damage do these worms do? These worms hook themselves onto the inside of your intestines, and besides sucking blood they give off a poison which causes still further loss of blood. When the worm tires of one place it moves to another, leaving a bleeding sore, and bites again.

If you have many of these worms you may find that you tire easily; you may feel like quitting when the shift is only half over; and when you go home at night you are fagged out.

After supper you feel more like going to bed than playing with your children or mixing with the boys. In the morning you don't feel rested, and are tired before you start in your day's work. Actual figures show that the miners with hookworm stay away from work more than the miners without hookworm.

If you have hookworm infection and are not cured, you may feel worse and worse. In very bad cases of hookworm infection the patient



FIG. I. Greatly enlarged view of Hookworm (female).—U. S. P. H. Service.

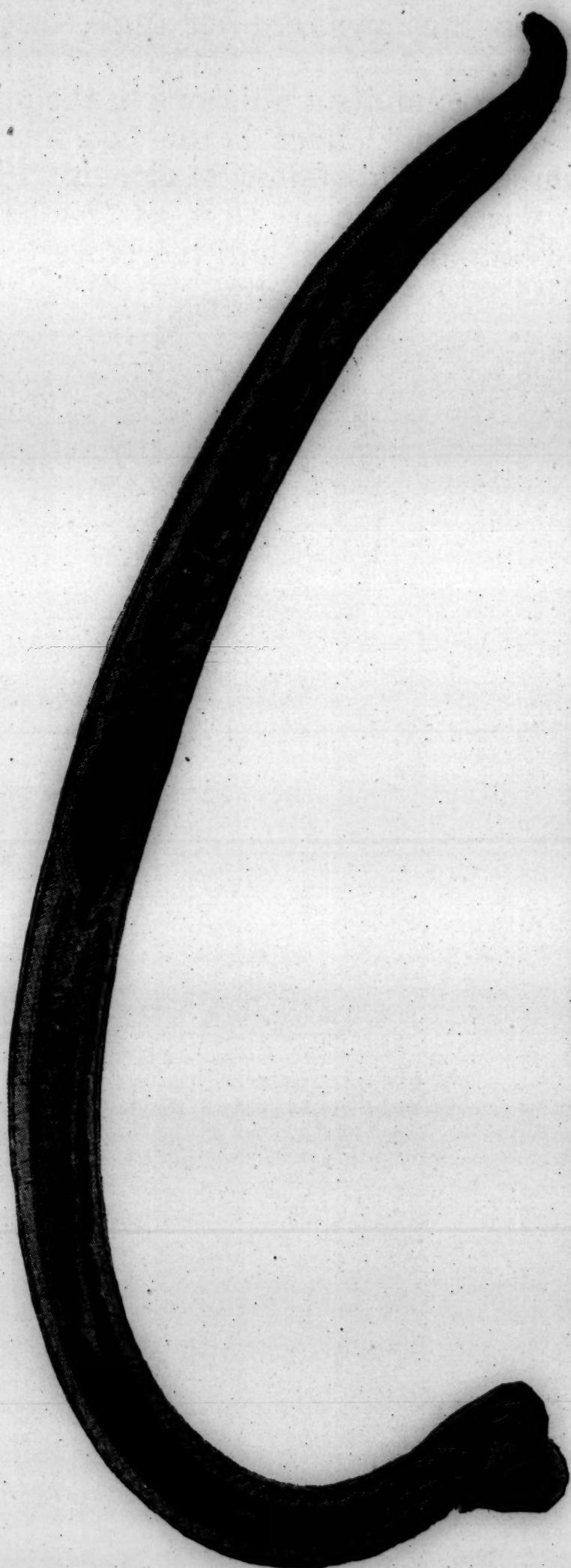


FIG. II. Greatly enlarged view of Hookworm (male).—U. S. P. H. Service.



FIG. III. Natural size of Hookworm (male and female).—U. S. P. H. Service.

becomes sallow and bloodless; he lacks ambition, he has a depraved appetite, and even running sores may break out on the legs.

How did you get these hookworms? Chiefly because of the careless habits of some miners who did not know the damage they were doing to you or to themselves.

The hookworms in the intestines lay eggs; these eggs pass out with the bowel discharges.

Every time a miner commits a nuisance in the mine by using the mine workings instead of a water closet, he starts a source of infection which is a menace to himself and his fellow workmen.

The many, many eggs which are thus set free hatch into small worms, so small that they can not be seen and therefore you can not avoid them.

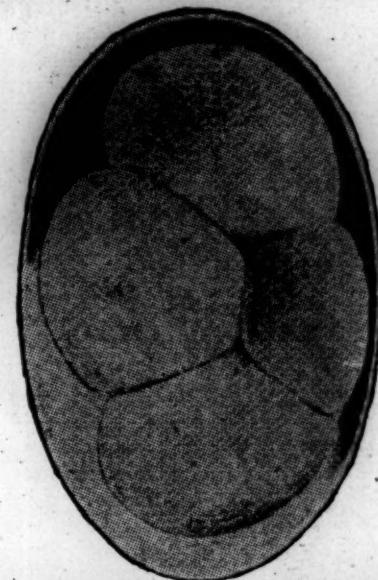


FIG. IV. Eggs.—U. S. P. H. Service.

If they come in contact with the skin they bore through and finally reach the bowels where they will grow up and lay eggs. The mine water spreads these worms about the stopes and cross-cuts and they are tracked all over the mines. From your shoes, they get to the ladders,



FIG. V. Head—U. S. P. H. Service.

and then onto your hands where they gain entrance to your body. Or if your shoes are worn out or broken these worms may get into your body through your feet.

Not only through the skin may the worms enter the body, but also through the mouth. Eating your meals in the mine with dirty hands may cause the entrance of the worms to the body through the mouth.

How can you as a miner help to stamp out this disease? Your own common sense will show you that hookworm infection can be stopped if you do as follows:

*First—Never commit a nuisance in the mine.

Second—Use surface toilets if possible.

Third—Scrub hands thoroughly before eating lunch.

Fourth—Scrub hands thoroughly and *take a hot shower at quitting time.*

Fifth—Boil out shift clothes at least twice a week.

Sixth—Keep your mine shoes in good repair.

We have told you that one-half the miners so far examined have hookworm disease; we have told you what the hookworm is and what



FIG. VI. Showing dwarfing effect of hookworm disease. Brothers, the smaller infected—said to be 21 years old; weight, 66 pounds. Larger not infected; 17 years old; weight, 126 pounds.—Rockefeller Sanitary Commission.

damage it can do to you; we have told you how you get the disease and how it is spread by carelessness; and what *you* can do to stamp it out.

Now what is going to be done to help those miners who are already infected?

The State Board of Health has a duty towards every citizen of the State. It is fighting consumption in the crowded parts of the large

*These six rules are printed on the back of the "Hookworm Certificate."
4—23401

cities; in the small towns it is fighting the mosquito that carries malarial fever; it is fighting typhoid fever in those towns which have no sewer system and an unsafe drinking water supply; all for the purpose of reducing sickness, prolonging life and adding to the sum total of human happiness.

The fight against hookworm is being waged in the interest of you miners of the State of California and the State Board of Health is going to examine *free of charge* every miner in the State of California.

The State Board of Health can not reach all of you personally, so it is asking the mining companies to help out in the work. The mine foreman will hand you a small bottle. You are asked to place a specimen of your stool, about the size of a chestnut, in the bottle. This can be done easily by means of the steel plate which is in the cork stopper. These specimens will be examined at our laboratories and we will tell you whether or not you have the infection. The mine manager will make an agreement with the local doctors so as to reduce the cost of the treatment. After you have taken the medicine, it will be necessary for the State Board of Health to re-examine you to see if the treatment has been successful. When you have been found free from it the following certificate will be handed you:

California State Board of Health

BUREAU OF COMMUNICABLE DISEASES.

HOOKWORM CERTIFICATE.

BERKELEY, CALIFORNIA.

Date _____

This is to certify that the excreta of _____ have been examined microscopically and have been found free from *hookworm infection*.

_____, Director.

IDENTIFICATION.

Age _____; Height _____; Weight _____.

Signature _____

This certificate is good for one year from date.

(Reverse of card.)

HOW TO PREVENT HOOKWORM INFECTION.

1. Never commit a nuisance in the mine.
2. Use surface toilets if possible.
3. Scrub hands thoroughly before eating lunch.
4. Scrub hands thoroughly and take a hot shower at quitting time.
5. Boil out shift clothes at least twice a week.
6. Keep your mine shoes in good repair.

Very truly yours,

JAS. G. CUMMING, M.D.,
Director, Bureau of Communicable Diseases

JOSEPH H. WHITE,
United States Bureau of Mines.

A TYPHOID ROLL OF HONOR.

By GUY P. JONES, Associate Editor.

The great reduction in the typhoid death rate in California during 1915 is due in no small measure to the activities of the health departments of some of the cities and counties of the State. The health departments of San Francisco and Los Angeles contributed greatly to the decrease in the rate from 32.2 per hundred thousand in 1906 to 9.7 per hundred thousand in 1915, as well as Imperial, San Bernardino, Sonoma and many other counties. In the April, 1915, Bulletin the average rates for the five-year period 1909 to 1914 for counties were published. By comparison with the 1915 rates, it will be seen which counties have aided in bringing about this reduction. If the few counties in which typhoid has increased were to adopt active measures for its control, California might have the lowest typhoid rate of any state. Butte, Calaveras, Colusa, Glenn, Siskiyou and Sutter counties should adopt active measures for the control of the disease, since there has been an increase in the mortality in these counties.

COUNTIES HAVING LOWER TYPHOID RATES.

	Average rate per 100,000 population, 1909-1914	Rate per 100,000 population, 1915
Alameda	12.7	9.8
Alpine	54.0	0.0
Del Norte	0.0	0.0
El Dorado	6.7	0.0
Fresno	35.3	11.5
Humboldt	15.5	5.3
Imperial	62.5	17.2
Inyo	11.9	0.0
Kern	34.0	25.5
Lake	39.2	20.2
Lassen	34.7	0.0
Los Angeles	13.3	5.6
Madera	8.0	0.0
Marin	10.6	3.3
Meriposa	16.8	0.0
Mendocino	15.3	0.0
Merced	16.5	5.5
Mendo	32.3	0.0
Mono	0.0	0.0
Napa	25.2	0.0
Nevada	13.4	0.0
Orange	31.3	19.0
Pacer	17.4	10.2
Pamas	22.2	0.0
Riverside	28.8	13.8
Sacramento	40.8	26.5
San Benito	10.4	0.0
San Bernardino	29.1	4.2
San Diego	14.9	8.9
San Francisco	15.2	9.0
San Joaquin	29.9	18.7
San Luis Obispo	19.8	9.6
San Mateo	8.1	0.0
Santa Clara	11.8	8.3
Santa Cruz	12.8	3.5

COUNTIES HAVING LOWER TYPHOID RATES—Continued.

	Average rate per 100,000 population, 1909-1914	Rate per 100,000 population, 1915
Sierra -----	8.0	0.0
Sonoma -----	17.2	7.5
Tehama -----	32.1	25.8
Trinity -----	25.3	0.0
Tulare -----	25.0	6.8
Tuolumne -----	48.5	10.0
Ventura -----	14.5	2.9
Yolo -----	14.9	7.1

COUNTIES HAVING SLIGHTLY LOWER TYPHOID RATES.

Amador -----	23.8	22.0
Contra Costa -----	23.1	18.0
Kings -----	39.0	36.2
Monterey -----	13.1	11.3
Santa Barbara -----	16.6	15.4
Solano -----	10.9	10.2
Shasta -----	19.4	15.2
Stanislaus -----	30.3	29.2
Yuba -----	21.6	18.5

COUNTIES HAVING HIGHER TYPHOID RATES.

Butte -----	23.2	36.7
Calaveras -----	10.9	21.8
Colusa -----	64.7	75.7
Glenn -----	20.9	36.4
Siskiyou -----	14.2	15.2
Sutter -----	13.1	15.3

In the following 16 counties there were no deaths from typhoid during 1915: Alpine, El Dorado, Inyo, Lassen, Madera, Mariposa, Mendocino, Modoc, Mono, Napa, Nevada, Plumas, San Benito, San Mateo, Sierra and Trinity.

BIRTH REGISTRATION IN SAN FRANCISCO.

By ADELAIDE BROWN, M.D., San Francisco, Member California State Board of Health, Chairman Public Health Committee, San Francisco Civic Center.

At the Civic Auditorium during Baby Week, March 9-16, 1916, an opportunity was given parents and friends to register every baby under a year of age.

The following card was filled out and sent to the Bureau of Vital Statistics of the State Board of Health:

BIRTH REGISTRATION.

The Baby's Right as a Citizen.

Fill out this card and we can tell whether your baby is recorded by the State of California.

Baby's name _____
Address (at time of birth) _____
Date of birth _____
Parents' names _____
Address (now) _____
Doctor's or midwife's name _____

The results are as follows:

		On file
From San Francisco County	143	110
From other counties	13	11
	<hr/> 156	<hr/> 121

Thus 77.6 per cent were recorded and 22.4 per cent were not recorded.

At a similar examination made last year in Los Angeles 60 per cent of births were found to be recorded.

The matter of birth registration is one of serious import to the child, both for a working certificate if he has to leave school for that purpose, and for establishment of citizenship in the United States. Failure to comply with the state law is due to lack of appreciation of the value of vital statistics on the part of the physician in charge, and it is hoped that this small investigation will bear fruit in better birth registration.

The State Board of Health's department of vital statistics will look over any group of cards similar to these provided they are *collected for babies under one year.*

CO-OPERATIVE PASTEURIZATION.

A co-operative pasteurizing plant which has many novel features has been operated for some time in Riverside. While owners of small dairies under the new law, may have their cows tuberculin tested, without resorting to pasteurization, it is possible that owners of small dairies may desire to co-operate in the establishment of a pasteurizing plant like the Riverside institution.

Seven dairymen organized the company in Riverside, which was incorporated with \$20,000.00 capital stock, \$8,500.00 of which was paid in by the organizers. This capital paid in stock was to draw 7 per cent interest, payable semiannually. A sufficient amount of money was borrowed to buy the property, build the plant and install the machinery. The plant started operating in March, 1911. No stock has been sold since that date and none is held by any one other than a dairyman.

Dr. George E. Tucker, city health officer of Riverside, says of the operation of this plant and of its effect upon conditions in Riverside:

"Before this plan was started, eight dairies were selling milk in the city, with eight wagons making two deliveries a day, and practically every block within one mile square was covered by each of the eight wagons in the early morning and in the evening.

In July, 1910, milk retailed at eight and one-third cents per quart. In November, 1910, the price was raised to ten cents per quart. A series of tests showed the butter fat content to vary from 3 to 4½ per cent, depending to a certain extent upon the convenience of the water supply.

After formation of the dairy company, the price was immediately reduced and reductions have continued until at the present time milk containing 4.2 to 4.5 per cent butter fat is sold for 15 quarts for \$1.00, or at 6½ cents per quart.

Since the formation of this company the number of dairies in the county has doubled.

All the milk and cream is pasteurized by being subjected to a temperature of from 147 to 160 degrees for ten to fifteen minutes. The milk is first aerated and cooled at the dairies, delivered immediately to the central plant, where it is pasteurized, bottled, reduced to a temperature of between 30 and 40 degrees Fahrenheit in the precooling plant and delivered to the consumer.

For the purpose of delivery but three wagons are used for the retail trade, whereas formerly the same amount of milk from the same number of dairies would have required fifteen wagons.

The total investment in this distributing station at the present time represents in real estate, buildings, machinery and improvements about \$31,000.00. There is a floating indebtedness of \$11,000.00, drawing 6 per cent interest, and accumulated assets of \$9,500.00.

Three dairymen are employed to manage the business at a sufficient salary to justify them in accepting such employment and discontinuing active dairy work. Sweet milk and cream are sold not only in the city of Riverside, but in the adjoining towns.

There are at the present time ten employees: the three dairymen above mentioned, three men for delivery and three men who operate the plant, and one bookkeeper.

The advantage of this method of handling the city milk supply is apparent. If at any time it is found on inspection that any of the contributors to this station are producing milk under conditions which are not satisfactory, a notice to the producer from the plant is sufficient to prevent the sale of this milk. The fact that our general milk supply is pasteurized does not in any way deter either the dairymen or the inspectors from insisting upon the production of clean milk.

I believe that the result of the central dairy plant experiment has fostered and very greatly increased the dairy business; that the dairymen receive more for their products; that the consumer receives a higher grade of milk at a less cost, and that two-thirds of the vexatious problems in the control of a small community's milk supply have been solved by the introduction of this plan."

CONFERENCE ON THE NEW MILK LAW.

A conference called by the State Board of Health was held April 27, 1916, with the State Veterinarian, State Dairy Bureau, health officers, and other interested, in the office of Dr. George E. Ebright, president of the California State Board of Health, in San Francisco. The object of the conference was the discussion of the points which will have to be considered in framing rules and regulations for the enforcement of the new milk law, to learn what part local inspection services will play in this work, and finally, to ascertain how the greatest co-operation can be secured between the dairymen and those having the enforcement of the new law in charge.

Dr. Charles Keane, State Veterinarian, and Mr. F. W. Andreasen, secretary of the State Dairy Bureau, explained the tentative plans of their respective departments relative to the operation of the new law.

Mr. Andreasen presented the following tentative rules, which were read by Doctor Sawyer:

RULES FOR THE ENFORCEMENT OF CHAPTER 742, STATUTES OF 1915. TO TAKE EFFECT OCTOBER 1, 1916.

INSPECTING DEPARTMENTS.

1. Every city, county or city and county, desiring the approval by the State Dairy Bureau of a milk inspection department, shall notify the said bureau of such desire. Upon receiving such notice it shall send a representative to investigate whether or not such city, county or city and county, has a sufficient force of inspectors and sufficient laboratory facilities to properly enforce the act above referred to. Or, if no laboratories are provided, whether arrangement has been made with some person, or department, to do the bacteriological and other laboratory work.

Upon receiving a report from such representative, the bureau shall notify the department whether or not the report was favorable and shall, if favorable, send notice of approval to said inspection department. Provided that should the inspection department for any reason become inefficient, the State Dairy Bureau may withdraw the approval until such time when the said department has again been made efficient.

Provisions must have been made by the department for the physical examination of all the cattle producing the milk to be sold within the jurisdiction of the department, at least once in every six months by a qualified veterinarian.

Should the report be unfavorable the bureau must, at once, notify the department what must further be done or provided to obtain the approval.

INSPECTORS.

No dairy inspector appointed by the State Dairy Bureau, or by any health department, whose dairy inspection service is approved by the State Dairy Bureau, shall accept any compensation directly or indirectly for any professional service or for any advice rendered to any dairymen, nor shall any such inspector be the agent for or be interested in any firm or corporation selling, or handling any apparatus, utensils or supplies used by dairymen, creameries or other factories of dairy products.

The inspectors, whose duty it will be to inspect and score the dairies, shall have passed a civil service examination given either by the civil service commission of the city or county in which the inspection department is situated, or by the State Civil Service Commission. Such examination, if given by a city, county or city and county shall be of equal or higher standard than that given by the State Civil Service Commission for the position of dairy inspector. Provided, that all persons holding the position of dairy inspector in any city, county or city and county for a period of six months prior to the first day of October, 1916, and who have performed the duty of such office to the satisfaction of the board of health of such city, or county, during that time, shall not be required to take the said examination.

Nothing in these rules shall be construed to require the health officer of the State, or of any county or city to take an examination before being qualified to inspect dairies, milk plants, creameries, cheese factories, or any other factory where milk products are handled.

AUTHORIZATION.

3. After the inspection of a dairy, the herd and a bacteriological examination of the milk from the dairy, the inspecting department shall notify the owner or manager of the dairy what grade of milk said dairy is authorized to sell.

GRADING AND LABELING.

4. Any person selling milk, either at wholesale or retail, within the jurisdiction of an inspection department, must mark or label each container with the grade of milk which the owner or manager of the dairy has been authorized by the inspection department of the locality to sell. Where the milk is sold in bottles, the grade of the milk shall be printed on the caps in letters not less than 12-point gothic capitals. That is to say, in letters not less than 1/8 inch long and 1/16 inch wide. Where the milk is sold in cans the grade of the milk must be printed in capital letters, or plainly written on a tag, or label, in letters not less than 1/4 inch in length and 1/12 inch stroke.

In printing or writing these different grades of milk the wording shall be as follows: "Guaranteed Milk—Raw"; "Guaranteed Milk—Pasteurized"; "Grade A Milk—Raw"; "Grade A Milk—Pasteurized"; "Grade B Milk—Pasteurized"; or "Not Suitable for Human Consumption."

BUTTER.

5. All butter sold for human consumption either at wholesale or retail, shall be marked on the outside of the container "Pasteurized," or "From Nonreacting Tuberculin Tested Cows." Said containers shall also be marked with the name and location of the creamery where produced or with name and address of the producer.

Doctor Keane stated that the intradermal, rather than the subcutaneous test, would be used in this work, the intradermal test having been found much more satisfactory than the subcutaneous test, as it is more searching and much quicker, it being possible to test five or six herds with the former test in the time necessary for testing one herd by the latter method. Doctor Keane laid special emphasis on the fact that all testing of cattle will be done under his supervision, by official veterinarians, this being in accordance with the interpretation of the law, as furnished by the Attorney General. Further, Dr. Keane said, that no testing will be done previous to October first, the date the new act goes into effect. After this date the State Veterinarian will have four assistants at present employed by that department, and four additional veterinarians who will be added to the force following the civil service examination in June next. At the present time the plans are being made to test the cows that supply cities having no inspection

services and some system of marking cows that have been tested is now being worked out.

Doctor Sawyer presented the question of the feasibility of establishing central pasteurizing plants, where a number of dairies could send their milk, the size of the community, rather than the size of the dairy to determine the number and size of the central pasteurizing plants. The fact that many dairymen are establishing pasteurizing plants under the impression that the milk will be required to be pasteurized at point of origin was mentioned by Doctor Keane.

After discussing the unnecessary expense which many dairymen are undergoing in the establishment of pasteurizing plants, which they will not be able to use, Dr. Charles Keane, State Veterinarian, offered the following resolution, which was seconded by Dr. Sawyer and carried:

Resolved, That it is the sense of this conference of state and local officials engaged in the enforcement of the new milk law that dairymen should be warned, through the press and other appropriate channels, to determine, before contemplating the purchase of pasteurizing apparatus, whether they will be allowed to ship previously pasteurized milk to the point of distribution, as many city and county inspection departments will doubtless require that the pasteurizing be done at a central plant at the distributing point.

Dr. Ebright presented the subject of the adoption of the score card of the United States Department of Agriculture as the official score card of California.

Dr. Sawyer offered the suggestion that the score card as adopted by the United States Department of Agriculture be adopted by California and thus keep the government records uniform. He also suggested that such changes as seemed advisable for California be made on a specimen card and forwarded to the department at Washington for approval or criticism.

There were present at the conference Dr. George E. Ebright, President of the State Board of Health; Dr. W. A. Sawyer, Secretary of the State Board of Health; Doctors Adelaide Brown, Edward F. Glaser, and Robert A. Peers, members of the State Board of Health; Dr. James G. Cumming, Director of the State Hygienic Laboratory; Mr. E. J. Lea, Director of the State Food and Drug Laboratory; Dr. Charles Keane, State Veterinarian; Dr. F. Iverson, Deputy State Veterinarian; Mr. F. W. Andreasen, Secretary, State Dairy Bureau; Dr. C. L. Roadhouse, Associate Professor of Veterinary Science, University of California; Dr. Geo. L. Melody, Dairy Veterinarian, Department of Public Health, San Francisco; Dr. J. Eagle, Department of Public Health, San Francisco; Dr. G. H. Hart, Milk Inspector, Los Angeles; C. L. Megowan, V.S., Food and Market Inspector, Sacramento; J. B. Bell, Milk Inspector, Pasadena; Frank Lyons, Milk Inspector, Stockton; C. A. Peairs, Milk Inspector, Tulare; A. A. Hull, health officer, Napa; Mr. J. Ratchford, U. S. Forestry Service, Alturas; T. Freitas and M. T. Nunes, of Stockton.

SQUIRREL ERADICATION.

By L. B. MALLORY, Assistant to the Secretary.

It is well to remind the ranchers of California—especially those owning large acreage used for pasturage or grain—that the ground squirrel is still a menace, not only to crops but also as a means of carrying and spreading bubonic plague.

Among the squirrels killed by hunters employed by the State Board of Health in co-operation with the United States Public Health Service, since February 22, 1916, 31 were found to be plague-infected. They were distributed as follows: Monterey County—M. Johnson ranch, eight miles north of Salinas, 11 squirrels; Raymond ranch, eight miles north of Salinas, 3 squirrels; C. Herbert ranch, nine miles north of Salinas, 5 squirrels; S. Dedini ranch, six miles east of King City, 1 squirrel; Otto Olsen ranch, seven miles northwest of Soledad, 2 squirrels; Peach Tree ranch, thirteen miles northeast of San Lucas, 1 squirrel; J. Girard ranch, eighteen miles south of Salinas, 1 squirrel. San Benito County—H. Walters ranch, two miles south of Mulberry, 1 squirrel; Kruse ranch, four miles east of Mulberry, 1 squirrel; D. J. Watson ranch, three and one-half miles south of Hollister, 1 squirrel. Contra Costa County—Lacassie ranch, one mile north of Walnut Grove, 1 squirrel; K. Griffith ranch, eight miles southwest of Antioch, 1 squirrel; Tom Silvea ranch, four miles south of Lafayette, 1 squirrel. Santa Clara County—J. Heinlen ranch, one and one-half miles west of Coyote, 1 squirrel.

It has been but nine years (1907) since California experienced a real epidemic of this dread disease; during that year there were 181 human cases of plague, 89, or nearly 50 per cent, of which were fatal.

The year previous, in one province in India known as the Punjab Province, 45,000 persons were stricken with this dread disease, 39,000, or 86½ per cent, of whom died.

The citizens of this State can well afford to spend a considerable sum of money and exercise much care and vigilance in the destruction of this disease-carrying rodent.

In Contra Costa County alone over 1,600 plague-infected squirrels have been killed, and it is for the purpose of ridding California of these rodents that the State Board of Health is conducting this campaign in conjunction with the United States Public Health Service, expending about \$25,000.00 a year, the United States Public Health Service furnishing nearly as much more.

Property owners, especially those in the infected areas, are asked to co-operate with the state inspectors and hunters in their efforts to destroy the pest.

In connection with this work the State Board of Health has found it necessary to collect certain claims, according to the provisions of sections 2 and 3 of chapter 422, Statutes of 1913, said claims being for work performed in connection with squirrel eradication.

There are other claims still unpaid, some of long standing, which the board will probably have to collect through the aid of the courts. This, however, it proposes to do and is preparing to bring suit in a number of cases.

REPORT OF THE MAY MEETING OF THE STATE BOARD OF HEALTH.

The regular monthly meeting of the State Board of Health was held May 6th, in Sacramento. There were present Dr. George E. Ebright, president; Dr. F. F. Gundrum, vice president; Dr. Edward F. Glaser, Dr. Adelaide Brown, Dr. Robert A. Peers, and Secretary Wilbur A. Sawyer.

In order that there may be no pollution of water supplies above the intake of the Los Angeles aqueduct, Carl Wilson was appointed an inspector of the State Board of Health, without pay, charged with the duty of enforcing state laws and regulations of the State Board of Health pertaining to stream pollution.

A petition from stockmen and citizens of Modoc County asking for a continuance of rabies eradication measures was read.

The following agreement with the Health Department of the state of Oregon regarding the transfer of sheep dogs, drawn up by the secretary, was confirmed by the board:

The California State Board of Health and the Oregon State Board of Health, in view of the fact that an effective campaign for the eradication of rabies is being carried on in Modoc County (and also those counties bordering upon the state line which separates the two states, in which future eradication campaigns may be instituted), hereby subscribe to the following agreement permitting, under certain conditions, the taking of sheep-dogs across the California-Oregon boundary between the above mentioned counties, said agreement to go into effect April 7, 1916:

One sheep-dog, but not more than one, muzzled with an efficient wire-cage muzzle, and actually used in herding sheep, shall be allowed to cross the state line with each five hundred (500) sheep, provided that the herder in direct charge of the dog has in his immediate possession a signed permit for the dog from the proper authorities of the state into which the dog is being taken. The state authorities issuing the permit are to be the California State Board of Health and the Oregon State Board of Health, or their authorized representatives. The permit must contain an identifying description of the dog and the name of the owner of the sheep. All dogs taken from one state into the other are to be strictly controlled in accordance with the regulations in force in the state into which they are being taken, and state officers issuing permits are instructed to inform applicants regarding the regulations of the state into which the dog is to be taken.

(Signed) DAVID N. ROBERG,
Oregon State Board of Health.

(Signed) W. A. SAWYER,
California State Board of Health.

The failure of H. J. Curry, an undertaker of Martinez, to file a death certificate within the time prescribed by law, was referred to the district attorney for prosecution.

The case of John Slavin, keeper of the Russian Cemetery near Los Angeles, who allowed the body of a child to be buried in the above named cemetery without a burial permit, was referred to the district attorney for prosecution.

The board passed resolutions regarding the epidemic of scarlet fever in Auburn. These require that contacts be quarantined from school and public assemblies for twelve days, and that the quarantine period shall be at least thirty days, and until all clinical symptoms (inflammation of ears or glands, and nasal, or throat discharges, etc.) have subsided, and that physical examinations shall be made of all residents and employees of dairies supplying milk to Auburn.

The following resolution relative to the failure of five health officers to report the presence or absence of communicable disease was passed:

WHEREAS, The following five out of 285 health officers of California have failed to file any reports regarding the presence or absence of communicable diseases during the present year in accordance with the law, although repeatedly warned; therefore be it

Resolved, That the local authorities be requested to remove them and appoint efficient health officers in their places, and that the names of the five delinquents be published in connection with the minutes of this meeting, as follows: Dr. D. L. Martin, Orland; Dr. T. K. McHugh, Rialto; Mr. James V. Chase, Mill Valley; Dr. J. A. Parks, La Mesa; and Dr. S. G. Bransford, Fairfield.

It was decided that in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, the use of the De la Guerra wells without chlorination is prohibited, and until such time as analyses indicate that the entire Santa Barbara supply is safe, a temporary permit only be granted in answer to the application of the petitioner, the city of Santa Barbara.

The board decided, in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, that a temporary permit be granted to the city of Willows to dispose of its sewage on the present 160-acre farm, pending the inauguration of more satisfactory methods of sewage disposal by the city.

It was decided that, in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, a temporary permit be granted to the city of Holtville to dispose of its sewage as at present and that the matter of granting a permanent permit be deferred to allow the installation of improvements as outlined in the report of the Bureau of Sanitary Engineering, dated April 14, 1916.

It was decided by the board that, in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, a temporary permit be granted to the city of Santa Barbara to dispose of crude sewage into Santa Barbara Channel as carried on at the present time, pending the formulation of plans and the construction of works as outlined in the report of the Director of the Bureau of Sanitary Engineering, dated March 6, 1916.

The board decided that, in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, a temporary permit be granted to the Redding Water Company to continue to supply

water to the city of Redding, and that action be deferred on the granting of a permanent permit until works which secure improvements equivalent to those recommended in the report of Mr. Ralph Hilscher of the Bureau of Sanitary Engineering, under date of April 6, 1916, have been installed.

Resolutions and applications from the cities of Pasadena and Alhambra to construct and maintain a tri-city sewage disposal plant in the county of Los Angeles was referred to Mr. C. G. Gillespie for consideration and recommendation.

It was decided that the state tuberculosis subsidy be not allowed to patients suffering from tuberculosis and being treated in buildings other than those which have been accepted by the State Board of Health.

The president appointed the following committee to supervise the questions prepared by the Director of the Bureau of Registration of Nurses for the forthcoming examination to be held in Los Angeles, Sacramento and San Francisco, on June 13th and 14th: Dr. Adelaide Brown, Dr. Robert A. Peers, and Dr. F. F. Gundrum.

In the matter of co-operation between the Bureau of Registration of Nurses and the State Civil Service Commission, it was decided that in the holding of civil service examinations for state or county positions, the examinations be given only in case the applicants are registered nurses or have applied in the regular way for examination to become a registered nurse.

In accordance with the recommendation of the Director of the Bureau of Registration of Nurses, the following applicant, having complied with the law, section 8, chapter 319, and with the rules and regulations of this board, was granted a certificate as registered nurse: Sister Emile Teresa Neidhamer, No. 5281.

The board then considered the violations of the Food and Drugs Act set for this date.

REPORT OF THE BUREAU OF ADMINISTRATION FOR APRIL, 1916.

W. A. SAWYER, M.D., Director.

PUBLIC HEALTH ACTIVITIES OF MEMBERS OF THE BOARD.

During April, Dr. Adelaide Brown, member of the board, spoke before the nurses of St. Luke's Training School on "Loyalty to the Nursing Profession as Graduates." She also addressed the medical students at Leland Stanford Medical Department on the Clean Milk Problem. Doctor Brown spoke before the State Federation of Women's Clubs at Del Monte, her subject being, "How the California Club Woman Can Co-operate with the Board of Health of the State." Doctor Brown also spoke to the Parent-Teachers Association at Colfax upon Social Hygiene.

Dr. Robert A. Peers, member of the board, on April 6th, addressed the Women's Improvement Club of Grass Valley on "Prevention of Infectious Diseases in Children." On April 18th, Doctors Peers, Ebright, Brown, Gundrum, and Sawyer inspected the tuberculosis ward of the Fresno County Hospital at Fresno. On April 19th, Doctors Peers, Ebright, and Sawyer attended the meeting of the State Association for the Study and Prevention of Tuberculosis, at Fresno. On April 27th, Doctors Peers, Ebright, Glaser, Brown, and Sawyer attended a meeting in San Francisco for the purpose of discussing the new milk law.

Dr. Edward F. Glaser addressed the Eye, Ear, Nose and Throat section of the California State Medical Society at Fresno on "The Present and Proposed Legislation for the Prevention of Blindness."

SANITARY INSPECTIONS.

EDWARD T. ROSS, Sanitary Inspector.

The entire month was spent in Modoc and Lassen counties in connection with the campaign being waged against rabies.

During the month a large number of stockmen were interviewed regarding their losses from rabies and coyotes. All state that coyotes are now very scarce, and that few cases of rabies are being found. They also state that they have had practically no losses from coyotes this spring, which is very unusual, as they generally lose at least 10 per cent of their lambs because of their destruction by coyotes during the spring season. One of the largest sheep owners stated that he had recently visited five of his sheep camps, located in the Secret Valley section of Lassen County, and was informed by his herders that they had seen very few live coyotes, but large numbers of dead ones, which had been poisoned by the state and federal hunters.

In addition to the investigations made regarding the loss of stock, etc., the hunters placed 9,959 pieces of poison and 2,302 traps and succeeded in destroying 504 coyotes, 90 dogs, 98 bobcats, 74 polecats, 695 rabbits and 420 squirrels. The rabbits and squirrels were used for bait.

The following is a summary of operations for the month:

Premises inspected for loose and unlicensed dogs-----	300
Dogs found without license-----	70
Dogs found provided with proper license-----	57
Dogs destroyed -----	90
Cats destroyed (domestic)-----	80
Coyotes destroyed by hunters and others using poison furnished by government or state -----	504
Bobcats destroyed -----	98
Polecats destroyed -----	74
Squirrels destroyed -----	420
Rabbits shot for bait -----	695
Magpies shot for bait -----	73
Badgers destroyed -----	37
Poison bait placed by district hunters-----	9,959
Poison issued (ounces)-----	145
Poison issued (filled capsules)-----	6,180
Empty capsules issued-----	19,119
Traps placed by district hunters-----	2,302
Notices posted (quarantine)-----	38
Notices posted (warning)-----	73
Notices posted (modification)-----	735
Miscellaneous letters, etc.-----	986

The following cases of suspected rabies were reported during the month:

Cattle -----	22
Horses -----	--
Sheep -----	4
Dogs -----	6
Coyotes -----	14
Bobcats -----	1

The following animals' brains were shipped to the Laboratory in Berkeley:

Cattle -----	14
Horses -----	1
Sheep -----	2
Dogs -----	4
Coyotes -----	9
Bobcats -----	--

The following animals were found dead during the month, cause of death doubtful:

Cattle -----	87
Horses -----	27
Sheep -----	384
Dogs -----	2
Coyotes -----	--
Bobcats -----	--
Hogs -----	--

Reports received from Laboratory in Berkeley show that the following cases proved positive for rabies:

Cattle	8
Horses	1
Sheep	1
Dogs	1
Coyotes	6
Bobcats	—
Hogs	—

The following cases proved negative:

Cattle	11
Horses	1
Sheep	1
Dogs	1
Coyotes	—
Bobcats	2
Hogs	—

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Clerk.

During April twenty cases of smallpox were reported to the State Board of Health. Of these twelve had never been vaccinated, four had been vaccinated more than seven years preceding attack, and vaccination histories were unobtainable for the remaining four cases. Fifty-eight cases of typhoid were reported during the month and three cases of poliomyelitis. A considerable decrease from the number of cases of these diseases reported during March is noted. Whooping-cough shows a considerable increase, as there were fifty-one cases reported during April. Measles continues to decrease. Diphtheria also shows a marked diminution. Six cases of ophthalmia neonatorum were reported.

Delinquent Health Officers.

The following health officers have failed to send weekly reports during April. Consequently, the State Board of Health has no information relative to health conditions in the cities and counties which these officers represent. Blanks and returned addressed envelopes have been sent to each of these officials and their attention has been called to the fact that no reports for April have been received.

- Dr. L. Michael—San Leandro.
- W. A. Burres—Sutter Creek.
- Dr. L. L. Thompson—Butte County.
- Dr. M. S. McMurtry—Clovis.
- Dr. Thos. F. Madden—Sanger.
- Dr. J. D. Hare—Reedley.
- Dr. D. L. Martin—Orland.
- Dr. Orville Rockwell—Fortuna.
- Dr. H. C. Richter—Calexico.
- Dr. I. J. Woodin—Inyo County.
- Dr. E. J. Riche—Watts.
- Mr. James V. Chase—Mill Valley.

Dr. Harry O. Hund—Ross.
Mr. L. H. Neil—Potter Valley.
Dr. A. Gibson—Alturas.
Dr. S. McL. Doherty—Napa County.
Dr. F. D. West—Beaumont.
Dr. J. W. Reese—Perris.
Mr. Thomas Lloyd—San Jacinto.
Dr. T. K. McHugh—Rialto.
Dr. J. A. Parks—La Mesa.
Dr. Chas. R. Knox—El Cajon.
Dr. J. C. Bainbridge—Santa Barbara County.
Dr. A. H. McFarlane—Mountain View.
Dr. A. A. Atkinson—Dorris.
Dr. W. L. McFarland—Benicia.
Dr. S. G. Bransford—Fairfield.
Dr. J. H. Barr—Yuba City.
Dr. D. B. Fields—Weaverville.
Dr. O. C. Higgins—Porterville.

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR APRIL, 1916.

JAMES G. CUMMING, M.D., Director.

AN INVESTIGATION OF HOOKWORM INFECTION AMONG THE MINERS OF CALIFORNIA.

Hookworm infection among California miners was first recognized about 1906 at Jackson, Amador County, by Dr. F. F. Sprague, and later Dr. E. E. Endicott called attention to its prevalence. Dr. Herbert Gunn made an investigation under the auspices of the State Board of Health in 1909. (Journal of the American Medical Association, January 28, 1910, Vol. LVI.) Dr. Gunn examined a number of men in two mines, and reported an infection of from 50 to 80 per cent. He pointed out that the disease was endemic in these mines and stated that hookworm larvae were found in earth taken from a cross-cut at the 1,600-foot level of one of the mines.

In the present investigation, the California State Board of Health, the California State Industrial Accident Commission, and the United States Bureau of Mines have allied their forces and will, with the mine operator, co-operate in a campaign against hookworm infection. The California State Industrial Accident Commission is interested in the campaign because hookworm infection may be considered an industrial accident and, since it is realized that it is possible, and likely, that infected miners carry the disease from the mines of one state to those of another, the United States Bureau of Mines has allied itself with the other forces in the campaign and, because hookworm infection is a dangerous, communicable and preventable disease, the California State Board of Health is desirous of stamping it out. This bureau has examined the excreta of about 1,000 of the 12,000 miners of California and found that approximately 50 per cent are infected with hookworm.

The specimen to be examined is obtained by giving to each miner a half-ounce wide-mouthed bottle. Two cubic centimeters of a 2 per cent tricresol are placed in each bottle before shipment to the mine superintendent. Into the cork stopper of each bottle there is inserted a metal spatula, which is used to transfer the specimen to the bottle. These containers are distributed to the miners with instructions to transfer a specimen of excreta, the size of a chestnut, to the bottle, then return it to the mine boss. When all the specimens have been collected, they are sent to the laboratory, where each is centrifuged and examined microscopically for hookworm eggs. The final report of the examinations is made to the mine operator, who arranges with the local physician to treat all infected miners. The expense of the treatment, including medicine, is equally divided between the operator and miner. Over 90 of those infected have been treated with oil of chenopodium, using the formula adopted by the United States Public Health Service. These treated individuals will, of course, be re-examined to determine definitely whether or not the treatment has been effective. As each miner is found by microscopical examination to be free from the infection, he is given a "Hookworm Certificate," which is issued by the California State Board of Health. This certificate, which is good for one year from date of issue, both identifies the man to whom it is issued and

certifies as to his freedom from hookworm infection. Inasmuch as most miners move at frequent intervals from one mine to another, it is evident that the certificate is one of the essential factors in a successful campaign of eradication of hookworm infection.

After the men of any certain mine have been examined and certificates issued, it is understood that no new labor will be employed unless provided with a certificate.

The mine operators have shown a most cordial spirit of co-operation in this campaign. It is, of course, realized that aside from the humanitarian standpoint, a successful campaign against the disease will eventually mean an enormous economic gain. The loss of labor efficiency can reasonably be placed at 20 per cent. In a mine employing 300 men who receive an average daily wage of \$3.00 and who it is ascertained have an infection of 50 per cent, there would be a loss in labor efficiency amounting to \$32,400.00 per year. There is now being prepared a bulletin on "Hookworm" which is issued especially for the purpose of informing miners of the disease. As it is estimated that the completion of this work will require from two to three years, further reports will be made as various phases of the problem are worked out.

Division of Biological Examinations.

*Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of April, 1916.*

Condition suspected	Positive	Negative	Inconclusive	Total
Main Laboratory at Berkeley:				
Anthrax		4		4
Diphtheria (diagnosis)	58	58	24	140
Diphtheria (release)	45	28		73
Gonococcus infection	14	7	1	22
Malaria		2		2
Rabies	26	23	2	51
Syphilis (Wassermann test)	19	104	3	126
Tuberculosis (sputum examinations)	6	9		15
Typhoid (Widal test)	1	17	1	19
Miscellaneous	3	1	2	6
				458
Northern Branch at Sacramento:				
Diphtheria (diagnosis)	1	12		13
Diphtheria (release)		4		4
Malaria	2	4		6
Tuberculosis (sputum examinations)	6	9		15
Typhoid (Widal test)		14	2	16
				54
San Joaquin Valley Branch at Fresno:				
Diphtheria (diagnosis)	3	60	8	71
Diphtheria (release)	11	20		31
Tuberculosis (sputum examinations)		7		7
Typhoid (Widal test)		6		6
				115
Southern Branch at Los Angeles:				
Diphtheria (diagnosis)	3	57		60
Diphtheria (release)	13	28		41
Malaria		1		1
Tuberculosis (sputum examinations)	4	10		14
Typhoid (Widal test)	1	18		19
				135
Total number of examinations				762

Division of Preventive Therapeutics.

*Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of April, 1916.*

	Treatment commenced	Treatment completed
Main Laboratory at Berkeley-----	5	3
Northern Branch at Sacramento-----	0	0
San Joaquin Valley Branch at Fresno-----	0	1
Southern Branch at Los Angeles-----	0	1
Laboratory of Sacramento Board of Health, by deputized bacteriologist -----	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist -----	1	1
Laboratory of Los Angeles Board of Health, by deputized bacteriologist -----	1	0
Laboratory of San Diego City Board of Health, by deputized bacteriologist -----	0	0
Laboratory of Letterman General Hospital, by deputized bacteriologist -----	0	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist -----	0	0
Totals -----	7	6

Vaccine for the Prevention of Typhoid Fever Issued by the State Hygienic Laboratory During the Month of April, 1916.

Number of physicians to whom vaccine was sent-----	17
Number of complete treatments sent-----	405
Number of ophthalmia neonatorum prophylactic outfits distributed during the month of April, 1916-----	265

Public Health Instruction.

Participation in Instruction in Public Health During April, 1916.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out-----	1
Bacteriological instruction outfits in use-----	23
Lectures or talks by the Director-----	5
Lectures or talks by the Assistant Director-----	1

Division of Epidemiological Investigations.

Epidemiological Investigations and Other Special Investigations During April, 1916.

Main Laboratory at Berkeley:	
Special investigations by the Director-----	2
Continuation of an investigation of dysentery at Napa, California.	
Continuation of an investigation of hookworm in the gold mines of California.	
Special investigations by the Assistant Director-----	3
An investigation of dysentery at Escalon.	
An investigation of scarlet fever at Los Banos.	
An investigation of scarlet fever at Patterson.	

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Births, Deaths and Marriages for March.*

State Totals and Annual Rates. The following table shows for California as a whole, the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,946,347 for California in 1916, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population, for Current and Preceding Months, for California: March.

Month	Monthly total		Annual rate per 1,000 population 1916
	1916	1915	
March—			
Births -----	4,179	4,119	16.7
Deaths -----	3,366	3,453	13.5
Marriages -----	2,106	2,119	8.4
February—			
Births -----	3,951	3,480	16.9
Deaths -----	3,179	3,011	13.6
Marriages -----	2,028	2,114	8.7

Except for a slight decrease in deaths, the birth, death and marriage totals were almost the same in 1916 as in 1915.

The birth registration exceeded the death total by 813, or 24.2 per cent, in March.

Length of Residence. As to deaths, it may be noted that for the 3,366 decedents in March the length of residence in California was as follows: Under 1 year, 134, or 4.0 per cent; 1 to 9 years, 618, or 18.4 per cent; 10 years and over, 1,505, or 44.7 per cent; life, 852, or 25.3 per cent; and unknown, 257, or 7.6 per cent.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 509; San Francisco, 440; Alameda, 170; Orange, 111; Fresno, 79; Sacramento, 75; San Diego, 64; Santa Clara, 63; San Bernardino, 56; Kern, 38; San Joaquin, 38; Marin, 36; and Sonoma, 30. The aggregate for San Francisco and other bay counties was 679 against 620 for Los Angeles and Orange counties together.

*NOTE.—The present report is for the month preceding, but one. This order must be followed, because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles -----	1,030	833	Orange -----	93	69
San Francisco -----	666	641	Tulare -----	78	28
Alameda -----	375	307	San Joaquin -----	73	104
Fresno -----	176	78	Kern -----	72	44
Santa Clara -----	144	134	Contra Costa -----	59	32
Sacramento -----	127	97	Sonoma -----	54	52
San Diego -----	117	136	Santa Barbara -----	52	34
San Bernardino -----	104	80	Stanislaus -----	48	45

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths, are presented similarly, for the principal California cities, below:

City	Births	Deaths	City	Births	Deaths
Los Angeles -----	701	516	Long Beach -----	43	36
San Francisco -----	666	641	Pasadena -----	43	48
Oakland -----	244	186	Stockton -----	35	60
San Diego -----	89	100	Bakersfield -----	32	27
Sacramento -----	86	78	Alameda -----	30	44
Fresno -----	77	32	San Bernardino -----	30	25
Berkeley -----	61	45	San Rafael -----	28	7
San Jose -----	51	38	Richmond -----	25	13

Geographic Divisions (Infant Mortality). The following table presents data for geographic divisions to show in comparison with total births and deaths the number of deaths under 1 year as some indication of conditions with reference to infant mortality in different portions of the State.

Total Births and Deaths, with Deaths Under One Year, for Geographic Divisions: March.

Geographic division	Total live births	Total deaths, all ages	Deaths under 1 year
The State -----	4,179	3,366	279
Northern California—			
Coast counties -----	167	179	10
Interior counties -----	238	160	11
Central California—			
San Francisco -----	666	641	53
Alameda -----	375	307	29
Other bay counties -----	150	73	10
Coast counties -----	280	234	13
Interior counties -----	790	541	64
Southern California—			
Los Angeles city -----	701	516	39
Rest of Los Angeles County -----	329	317	17
Other counties -----	483	398	33

Cause of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: March.

Cause of death	Deaths: March	Proportion per 1,000	
		March	February
All causes	3,366	1,000.0	1,000.0
Typhoid fever	16	4.7	4.1
Malarial fever	1	0.3	1.9
Measles	4	1.2	0.6
Scarlet fever	5	1.5	0.6
Whooping-cough	13	3.9	2.8
Diphtheria and croup	27	8.0	7.2
Influenza	19	5.6	12.0
Other epidemic diseases	12	3.6	1.9
Tuberculosis of lungs	428	127.2	136.8
Tuberculosis of other organs	59	17.5	17.0
Cancer	260	77.2	67.6
Other general diseases	138	41.0	36.2
Meningitis	31	9.2	8.2
Other diseases of nervous system	216	64.2	72.7
Diseases of circulatory system	702	208.6	196.0
Pneumonia and broncho-pneumonia	285	84.7	100.3
Other diseases of respiratory system	50	14.8	16.7
Diarrhea and enteritis, under 2 years	37	11.0	11.6
Diarrhea and enteritis, 2 years and over	39	11.6	7.9
Other diseases of digestive system	172	51.1	45.6
Bright's disease and nephritis	246	73.1	76.8
Childbirth	35	10.4	7.2
Diseases of early infancy	118	35.1	34.0
Suicide	85	25.2	23.9
Other violence	231	68.6	71.1
All other causes	137	40.7	39.3

In March there were 702 deaths, or 20.9 per cent of all, from diseases of the circulatory system, and 487, or 14.5 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly in the death total for March.

Other notable causes of death in March were: Pneumonia and other diseases of the respiratory system, 335; violence, 316; cancer, 260; diseases of digestive system, 248; diseases of nervous system, 247; Bright's disease and nephritis, 246; and epidemic diseases, 97.

The deaths from epidemic diseases were as follows: Diphtheria and croup, 27; influenza, 19; typhoid fever, 16; whooping cough, 13; and all other epidemic diseases, 10.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Diphtheria and croup	Influenza	Typhoid fever
Alameda	5 Butte	1 Alameda
Fresno	1 Los Angeles	3 Amador
Imperial	1 Mendocino	1 Butte
Los Angeles	4 Orange	2 Fresno
San Francisco	14 San Diego	2 Imperial
Siskiyou	1 San Francisco	2 Los Angeles
San Joaquin	1 Santa Barbara	1 Sacramento
San Luis Obispo	— Santa Clara	2 San Bernardino
Total	27 Siskiyou	1 San Diego
	Sonoma	1 San Francisco
	Tulare	1 San Joaquin
	Tuolumne	1 Santa Barbara
	Yolo	— Total
		16
	Total	19

Sex, Race and Nativity. The proportion of the sexes among the 3,366 decedents in March was: Male, 2,054, or 61.0 per cent, and female, 1,312, or 39.0 per cent.

The race distribution of decedents was: White, 3,175, or 94.3 per cent of all; Japanese, 76; Chinese, 58; Negro, 45; and Indian, 12.

The 3,175 white decedents were classified by nativity as follows: California, 789, or 24.8 per cent; other states, 1,283, or 40.4 per cent; foreign countries, 1,028, or 32.4 per cent; and unknown, 75, or 2.4 per cent.

Age Periods. The 3,366 deaths reported for the month were distributed by age periods as follows: Under 1 year, 279, or 8.3 per cent; 1 to 4 years, 144, or 4.3 per cent; 5 to 9 years, 45, or 1.4 per cent; 10 to 19 years, 103, or 3.1 per cent; 20 to 29 years, 264, or 7.8 per cent; 30 to 39 years, 372, or 11.0 per cent; 40 to 49 years, 372, or 11.0 per cent; 50 to 59 years, 444, or 13.2 per cent; 60 to 69 years, 480, or 14.3 per cent; and 70 years and over, 863, or 25.6 per cent.

The 279 deaths under 1 year, in comparison with the 4,179 live births reported for the month, represent an infant mortality ratio of 67 per 1,000 births.

REPORT OF THE BUREAU OF TUBERCULOSIS FOR APRIL, 1916.

E. L. M. TATE, Director.

Marin County has made application for the state subsidy for the care of tuberculosis cases in its county hospital. The standard required by the State Board of Health for securing the subsidy is rapidly being attained, and Marin County will soon be added to the list of counties operating tuberculosis hospitals under the subsidy.

Semiphilanthropic sanatoria in California insist that it will be impossible for them to care for advanced cases. Places must be provided for the care of advanced cases. The fact that semiphilanthropic institutions can not care for this class of cases emphasizes the need for county governments to provide places for their care.

An inspection of the Santa Clara County tuberculosis hospital has been made, and recommendations have been made to the board of supervisors. While making the inspection, the director was impressed with a remark made by the nurse in charge. It was two o'clock and all of the patients were lying on the beds resting. She said: "I will not apologize for my wards because my patients must rest." Yet visit after visit is made in hospitals where the nurses say, "My patients won't rest." Sometimes the director wonders if the fault lies with patient or nurse.

The recommendation of the California State Board of Health to the State Board of Control that all children receiving state aid be examined, particularly for tuberculosis, will soon be acted upon. The same sort of examination will be provided for wards of the juvenile courts. The mature plans will be published later. It is not known that any other state has undertaken constructive work of this sort.

The second inspection of the Sacramento County Tuberculosis Hospital has been made.

Oroville was visited during the month and rural nursing with its results was discussed before the school trustees of Butte County. The director hopes to have opportunities to meet other bodies of school trustees for the purpose of discussing this same subject. There was great interest manifested in Butte County, and if as great interest is displayed in other counties, rural nursing will be promoted throughout the State.

During the meeting of the California State Medical Society in Fresno, the Fresno County Tuberculosis Hospital was visited by many delegates, the new building receiving considerable praise. The California State Society for the Study and Prevention of Tuberculosis met in Fresno at the same time that the medical society was in session. Many members of the association also had opportunity to see how much can be accomplished in the construction of a tuberculosis hospital, without the expenditure of large sums of money.

Social problems connected with tuberculosis were discussed at a meeting in San Francisco toward the end of April. The director also had the opportunity of speaking before the State Federation of Women's Clubs at Del Monte.

The bureau's parcel post exhibits and lantern slides are in constant use.

An antituberculosis campaign has just been started in the Indian school at North Fork.

During April 2,500 pieces of literature were distributed by the bureau through the aid of local health officers.



The California State Board of Health has procured a set of panels from the National Child Welfare Exhibit of New York, and is prepared to send the exhibit in sets of ten or fifteen panels to gatherings and institutes, such as are enumerated below, the only cost being the express charges each way. This exhibit is prepared for the promotion of healthy babies and healthy children. Each panel is complete in itself but is also one of a series, such as the following:

1. *Healthy Babies*—The Responsibility of the Home. (10 panels.)
2. *Healthy Children*—The Responsibility of the Home. (5 panels.)
3. *Healthy Children*—The Responsibility of the Home and Community. (5 panels.)
4. *Healthy Children*—The Responsibility of the Community. (5 panels.)

The panels are 18 by 28 inches, mounted on cardboard, and are especially adapted for use in gatherings, such as teachers' institutes, conventions of civic centers, better baby conferences, mothers' clubs, etc. They are also being sent out to libraries and other public institutions, to be placed on exhibition for a period of a week or ten days. Applications will be honored in the order in which they are received. Please state which groups are preferred.

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR APRIL, 1916.

C. G. GILLESPIE, C.E., Director.

The bureau during the past month has endeavored to determine the actual performance of sewage treatment plants in California. The information will be of value in improving operation and design of works and in bringing to light the merit or lack of merit of certain sewage disposal devices put forth and exploited in this State without possession of adequate data on their capabilities. Detailed data on three plants studied to date will be presented in a later bulletin. Field and laboratory studies are being carried on in a thorough manner and leave no room for doubt on the plant performance over the period covered by the test, which usually lasts two or three days, samples being collected bihourly or oftener, the flow measured and relative data collected.

The most noteworthy report of the bureau for the month dealt with improvements to the Redding water supply, following a detailed sanitary survey of the upper Sacramento River watershed, which showed that there are no prospects of early prevention of the pollution of its source. As long as large towns like Dunsmuir continue to maintain series of detached private sewers dumping into the river, it is practically hopeless to expect cheerful compliance with sanitary requirements by the many smaller violators of stream pollution laws in the region.

Santa Barbara has taken active steps in improving its water supply as recommended by the bureau. The main features to be inaugurated at this time are chlorination and the establishment of a city laboratory. Both features should advance the standing of that city among the most healthful in the State.

A detailed statement of the work of the bureau for the month follows:

SEWAGE DISPOSAL.

Applications for Permits Filed.

Santa Barbara: To discharge sewage into the Pacific Ocean.

Pasadena, South Pasadena, Alhambra (jointly): To dispose of sewage onto sewer farm and into Rio Hondo River.

St. Helena: To dispose of sewage onto sewer farm and into Napa River in winter.

Holtville: To discharge sewage onto Alamo Tracts Nos. 1, 2, and 3.

Permits Granted.

Calistoga: Temporary permit to discharge septic tank effluent onto four-acre farm in summer and into Napa Creek in winter, pending demonstration of the effectiveness of the disposal from river protection and nuisance aspects.

Sonoma: Temporary permit to dispose of septic tank effluent on existing sewer farm, pending demonstration of more faithful plant operation.

Holtville: Temporary permit to discharge sewage onto Alamo Tracts Nos. 1, 2, and 3, pending conversion of septic tank into Imhoff tank and using of pipe in place of ditches for conveying sewage over the farm.

Willows: Temporary permit to dispose of sewage on present farm and slough, pending devising of more improved methods of disposal.

Santa Barbara: Temporary permit to dispose of sewage into Santa Barbara Channel pending improvements to present sewer overflows and beach nuisance.

Plans Filed—None.

INVESTIGATIONS OR INSPECTIONS.

Madera: The city contemplates the installation of a septic tank, disposing of the effluent into a nearly dry slough in which the crude sewage now creates a serious nuisance. The bureau has notified the city informally that its plan is ill-advised, and suggests disposal by irrigation if the necessary tract can be procured.

Riverdale: The creamery wastes from the butter-making town of Riverdale are creating the most serious nuisance with which this bureau has had to deal. The creameries have adopted the customary tankage treatment for clarification, employing a two-day settling period. The effluent is intensely odorous. A sandy subsoil in the vicinity promises to offer possibilities for odorless disposal of the clarified effluent by underground methods. The problem is not thereby settled in principle, however, as many creameries in the State can not find receptive soil. It behooves creameries to look well into the disposal of wastes in considering a proposed location.

Chico: Disposal plant comprises an Imhoff tank and a farm of 75 acres. The tank has received little attention and is working very poorly. Suggestions have been made for an improved schedule of operation which if followed out should result in better clarification and reduction of odors which are now produced.

Healdsburg: A four-day test was conducted at the septic tank, consisting of collection of a large number of samples of raw sewage and effluent for analysis and measurement of flow. Results of the test will be submitted in a later bulletin.

Ukiah: The septic tank was again inspected and was continuing to produce as poor results as at the time of visit in February. The city officials show a desire to make an improvement, and the city engineer has been instructed to submit certain data as a basis for advice on a remedy by this bureau.

Guerneville: A portion of the buildings in the business district is served by a sewer and septic tank which discharges directly into the Russian River at a point above numerous bathing places and summer resorts. It is planned to dig a large cesspool in the gravel deposits to receive this effluent and keep it out of the river at least during the vacation season.

Sebastopol: Sewage from the town is passed through a septic tank, the effluent of which flows into Laguna de Santa Rosa. The problem is one of preventing a local nuisance, which apparently is being accomplished. While the lagoon presents a very unsightly appearance, the

surrounding topography is such that wide areas of land are periodically flooded, making habitation in the locality impossible. There were no offensive odors at the time of visit.

Holtville: Municipal sewage is settled in an open septic tank, much too large, and disposed of by irrigation on a 30-acre tract adjoining. Intense odors escape and have stirred the neighboring farmers to threats of a damage suit. The bureau has advised conversion of the tank to a housed Imhoff type, the use of pipe instead of a ditch to reduce evaporation and consequent odors, the spreading of the sewage by furrows instead of flooding, all to eliminate or reduce odors.

Oceanside: One effect of the January storm was the forming of a vast sand bar, shutting off escape of the septic tank effluent into the sea. The sewage is now accumulating on the bar with serious nuisance. The obvious solution is to extend the outfall out to sea some 700 feet, using a submerged universal joint cast iron pipe laid deep, or a steel pipe guided between rows of piles. The former is preferable.

St. Helena: A two-day test of the septic tank was made, similar to the Healdsburg test. The results indicated inferior clarification, and on opening up the tanks for the first time since their construction eight years ago, it was found that every unit, of which there are six, was almost solid, full of sludge and scum. There are about 800 cubic yards of sludge to be cleaned out, representing the accumulation of sludge from about 800 persons in 8 years, an unusually rapid accumulation. The tanks are the so-called Castner septic tanks, which are claimed to produce superior liquefaction of the sludge. The St. Helena experience does not bear out the claim.

Winters: A two-day test of the Winters Imhoff tank shows that clarification is not as effective as was expected, that the covering on the tank to confine odors in the vicinity has made it impossible to clean down the sides of the settling chamber, and a heavy scum coats the surface, imparting its decomposition products to the effluent. The effluent was stale and odorous, due either to excessive retention period of ten hours, or to the presence of so much scum and decomposing material in the settling compartment which can not be cleaned out, or to both causes. Surveys indicate that the final disposal of this effluent into Putah Creek may be a serious menace to health of fruit pickers who camp on the stream. If such is found to be the fact, the city will face a difficult disposal problem, inasmuch as the present location of tank does not admit of its use in disposal on land without continuous pumping.

WATER SUPPLIES.

Applications for Permits Filed.

Santa Barbara: To continue to supply water to city.

PERMITS GRANTED.

Redding (Redding Water Company): Temporary permit to furnish water to Redding, pending the installation of clarification works and chlorination works at least equivalent to those stipulated by the bureau.

Plans Filed—None.

INVESTIGATIONS OR INSPECTIONS.

Oceanside: The city supply is pumped from wells in the bed of the San Luis Rey River. During the January storm, the river tore the suction intake away and polluted the wells. For some time thereafter water was drawn from the river direct, chloride of lime being hastily applied at the reservoir in a bag, a most commendable emergency measure, as the river is decidedly unsafe in the untreated state. The normal quality of such river-bottom wells is in doubt, and particularly of the wells here. The city will probably adopt the recommendation of the bureau and chlorinate the supply at all times.

Ukiah (Mendocino State Home): The supply is derived from a mountain stream and impounded in two reservoirs. One of the reservoirs was only recently completed, and the visit was made primarily to determine whether it would be desirable to chlorinate the water used from it, due to possible contamination produced by the construction camp. It has been recommended that a temporary hypochlorite plant be installed, to dose the incoming water of the stream until the camp on its banks can be abandoned, possibly sixty days hence.

St. Helena (reinspection): The St. Helena Water Company has applied copper sulphate to the reservoir supply with excellent results. The company is to install a chlorination plant.

Calexico: The slow sand filter cleaned by the Blaisdell sand washer, filtering the Colorado River water having an actual turbidity of 5,000 to 10,000 parts per million, which is reduced to about 200 parts per million after twenty-four hours settling, was inspected and found to be removing every trace of residual turbidity in the settled water, when filtered at a rate of about 8,000,000 gallons per acre per day. About 99.3 per cent of the bacteria were being removed at the time of inspection. The adaptability to the peculiar Colorado River water is apparently proven both at this point and at Yuma, which is a similar installation. Its equal success on the ordinary turbid waters of the state is yet to be demonstrated.

Los Banos (reinspection): The canal supply was inspected for a distance of 34 miles from Los Banos to its head at the confluence of San Joaquin River and Fresno Slough. Turbidity and algae are the most objectionable elements in the supply from the popular standpoint, though pollution is also a serious factor.

LABORATORY WORK.

Bacteriological examinations of water—160, of which 104, or 65 per cent, showed contamination.

Bacteriological examinations of sewage—9.

Sanitary chemical analysis of water—1.

Chemical examinations of water—160 (partial).

Mineral analyses of water—2.

Microscopical examination of water—1.

Chemical analyses of sewage—8.

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR APRIL, 1916.

E. J. LEA, M.S., Director.

Two hundred and thirty-four samples of foods, drugs and miscellaneous materials were received during the month of April, being classified as follows:

Official.

Foods	-----	104
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Drugs	-----	17
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Unofficial.

Foods	-----	36
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Drugs	-----	3
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Miscellaneous	-----	6
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Cold Storage.

Foods	-----	68
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The official samples consisted of condiments, confectionery, extracts, liquors, meats, spices and several miscellaneous materials.

Spices. Spices in bulk have received considerable attention from this department recently. We find that a number of wholesale spice dealers are in the habit of adulterating spices with roasted flour, etc., without declaring the added material on the label. Our food laws permit the mixing of cereals and harmless materials with spices, provided that the label clearly indicates such fact. However, none of the adulterants used in spices serve a useful purpose. Unfair competition and illegitimate profits are, apparently, the only arguments in favor of this adulteration. In many cases the spices are not labeled, but they are sold in bulk as a pure product, and it is customary for some restaurant dealers, butchers and bakers to use this class of spices. These adulterated spices, of course, are cheaper than the genuine which, no doubt, accounts for their extensive use. The people who use such adulterated spices may not realize that they contain a large amount of inert material, but ordinarily the price of this grade of spices alone should be enough to arouse suspicion.

Extracts. After several years of experience in the manufacture and labeling of extracts there are still some manufacturers who design their labels so as to deceive the average purchaser. An imitation vanilla extract will be labeled in bold distinct type "VANILLA" and followed by small, and often very indistinct type, reading "vanillin and coumarin." Or the words "imitation" or "artificial" may be placed on some inconspicuous part of the label in small or indistinct type. Such a practice conforms neither to the letter nor the spirit of the law, and this department will regard as mislabeled all extracts which are labeled as outlined above.

Liquors. Thirteen samples of liquors were examined this month. In nearly all cases they were found to be in violation of the food law, in that the bottles bearing certain labels or brands had been refilled with inferior materials. In almost every instance the substituted material was greatly inferior to the genuine. The principal reason for

this substitution lies in the difference in price between the **genuine** and the substituted article. The testimony of the various **defendants** in these cases showed that the genuine liquors cost from seven dollars to twelve dollars a gallon, whereas, the substituted products **cost from one dollar and fifty cents to two dollars a gallon.**

Unofficial Samples.

Forty-five unofficial samples of a miscellaneous character were examined during the month. These samples included **paraffin** candy which contained a nonpermissible color; butter which **was rancid**. Four samples of macaroni were examined for quality, **in order to determine if the coal tar color concealed inferiority**. Seven samples of damaged flour were examined, one of which was found **to contain coal oil**.

The samples examined for state institutions this month included olive oil, salt, cheese, syrup and extracts which corresponded to specifications. Three samples of flour, one sample of eggs, one sample of tomato catsup were materially below the specification requirements. These materials were rejected.

Cold Storage Samples.

More than seven thousand pounds of cold-stored foods were destroyed this month. The principal items were egg meats, fish and poultry.

It seems that several produce dealers overestimated the amount of supplies that would be required during the Exposition year, and consequently a large quantity of such materials have spoiled **in the warehouses**.

Articles in Cold Storage Condemned Upon Physical and Chemical Examination as Unfit for Food, April, 1916.

Material	Amount	Locality	Condition	Disposition
Abalone -----	100 lbs.	San Francisco--	Decomposed -----	Denatured.
Egg meat -----	1,320 lbs.	San Francisco--	Putrid, decomposed -----	Incinerated.
Egg meats -----	2,072 lbs.	San Francisco--	Putrid, decomposed -----	Denatured.
Fish -----	1,800 lbs.	San Francisco--	Putrid, decomposed -----	Incinerated.
Lemon peel -----	4 tubs	Los Angeles ---	Moldy -----	Incinerated.
Pork loins -----	100 lbs.	San Francisco--	Decomposed -----	Denatured.
Poultry -----	600 lbs.	Oakland -----	Decomposed -----	Incinerated.
Turkeys -----	900 lbs.	San Francisco--	Decomposed -----	Denatured.
Walnut meats -----	500 lbs.	San Francisco--	Rancid -----	Incinerated.

Diseased Beef.

On April 22d, nineteen head of cattle were shipped **into Oakland** from Gustine, Merced County, for food purposes. A number of these cattle appeared to be suffering from disease, and upon inspection it developed that six of the nineteen were totally unfit for **human consumption**.

The Oakland health department co-operated with this bureau in the condemnation and destruction of the six diseased animals.

*Material Destroyed on Physical and Chemical Examination as Unfit for Food,
April, 1916.*

Material	Amount	Condition	Locality	Disposition
Butter -----	175 lbs.	Rancid -----	Oakland -----	Denatured.
Condiments -----	15 jars	Moldy, decomposed.	Oakland -----	Destroyed.
Corn meal -----	700 lbs.	Water soaked -----	San Francisco--	Made into poultry feed.
Flour -----	1,000 lbs.	Water soaked -----	San Francisco--	Denatured.
Ice cream -----	4 gals.	Rancid -----	Oakland -----	Denatured.
Peanuts -----	250 lbs.	Rancid -----	San Francisco--	Denatured.
Shrimps, dried --	250 lbs.	Decomposed -----	San Francisco--	Denatured.

The Director of the Laboratory accepted an invitation from the Master Bakers Association of San Francisco to address that body on April 26th.

The members of this association were especially interested in the quality of supplies which they are permitted to use, and also in the labeling of their products. Several bakers asked how they could tell when an egg was fit to use and when it should be thrown away. Others were interested in knowing how bad butter could be, and still be allowed in bakery products.

There are no definite technical standards which will answer these points, but it seems that good common sense ought to tell a baker when butter is rancid and when eggs are sour, moldy, decomposed or rotten. Our recent investigations have disclosed the fact that a certain class of bakers will use rotten eggs, excessively rancid butter and other materials of inferior quality. The result is that to meet the competition other bakers are tempted, and often do, lower the quality of their supplies. Consequently, many cakes and other pastry are turned out which are absolutely unfit for food. Competition should be based upon good quality rather than inferior material, which may be had at a lower price.

Some bakers make pastry from good materials, but do not use a sufficient amount of the more expensive ingredients to insure a palatable product. That is to say, they use less eggs, less butter, etc., than a housewife would use for a similar article. Very few bakers make pastry that will compare favorably with a good, home-made product. More housewives would buy cakes, instead of baking them at home, if they could get a quality that would be satisfactory.

It is the general opinion among bakers that a certain class of trade calls for inexpensive bakery products. These products, however, should be composed of wholesome materials, even if they are cheap. Undoubtedly, the baking industry as a whole would be greatly benefited by improving the quality of many of its raw materials. A large percentage of consumers, if they could be assured of a high grade of goods, would be glad to patronize bakeries and pay a fair price for bakery products made with the proper amounts and proportions of

good materials. It seems reasonable to suppose, therefore, that the bakery business might be wonderfully increased by the use of better materials.

Harmless artificial colors may be used in frostings and in cakes, provided they are not used to conceal inferiority, or to imitate some natural product.

If a cake is labeled or sold as "raspberry cake," for example, it should contain a material amount of some genuine raspberry product. On the other hand, if the cake is artificially colored and does not contain raspberry, it would legally be adulterated and mislabeled. If a cake is labeled or sold as "jelly cake," it should contain genuine jelly; but if the cake contains any of the imitation jellies, such as artificially colored and flavored starch paste jelly, glucose jelly, or any other imitation products, the cake should be labeled or sold as "imitation jelly" cake.

Milk Bread—Past and Present.

Several bakers, who were present at the meeting of the Master Bakers Association, stated that twenty or thirty years ago milk bread was made with milk instead of water. At that time milk was cheap. As the price of milk increased some bakers used water with the milk. As time went on less and less milk was used in the making of milk bread, until at the present time the so-called milk bread means bread made by a certain process, and does not mean bread made with milk.

In the opinion of this department, the making of bread by a certain process, without the use of a substantial amount of milk, does not justify the use of the term "milk bread."

The bureau has received from the United States Department of Agriculture the following food inspection decisions, which automatically become law in this State:

Food Inspection Decision 165.

CACAO PRODUCTS.

The definitions and standards for these products remain the same as heretofore, with the addition of the following:

Milk chocolate, milk cocoa, sweet milk chocolate or sweet milk cocoa, respectively, is chocolate, cocoa, sweet chocolate or sweet cocoa which contains not less than twelve per cent (12%) of whole milk solids in the finished product.

Food Inspection Decision 166.

(Amending Food Inspection Decision 115.)

ROCKY FORD MELONS.

Investigations conducted by the department have disclosed that the term "Rocky Ford," as applied to muskmelons, has come to mean a particular type of muskmelon which is grown in various localities in the United States. In paragraph (c) of Regulation 19 of the Rules and Regulations for the Enforcement of the Food and Drugs Act of June 30, 1906, it is provided that "the use of a geographical name in connection with a food or drug product will not be deemed a misbranding when by reason of long usage it has come to represent a generic term and is used to indicate a style, type, or brand; but in all such cases the state or territory where any such article is manufactured or produced, shall be stated upon the principal label."

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The department, therefore, will not regard as being misbranded muskmelons of the Rocky Ford type labeled "Rocky Ford," which are grown in other localities than Rocky Ford, Colorado, provided the name of the state or territory where the melons are produced is stated on the principal label.

Food Inspection Decision 167.

(Amending Food Inspection Decisions 153 and 155.)

USE OF GUARANTY LEGENDS AND SERIAL NUMBERS ON LABELS AND CONTAINERS PRINTED OR MARKED PRIOR TO MAY FIVE, NINETEEN HUNDRED FOURTEEN.

It has been made to appear that (1) dealers in food and drugs have on hand a great many labels and containers printed or marked prior to the date of Food Inspection Decision 153 (May 5, 1914); (2) these labels and containers bear the legend "Guaranteed by (name of guarantor) under the Food and Drugs Act, June 30, 1906," or a serial number issued by the United States Department of Agriculture, or both; (3) these labels and containers, when so printed or marked, complied with the rules and regulations for the enforcement of the Food and Drugs Act in effect at the time; and (4) great financial loss will result to such dealers, through their inability to use these labels and containers, if Regulation 9, as amended by Food Inspection Decisions 153 and 155, be enforced beginning on May 1, 1916.

Accordingly, proceedings under the Food and Drugs Act, based on the shipment in interstate or foreign commerce, or the sale in the District of Columbia or the territories, prior to May 1, 1918, of any article of food or drugs, will not be instituted solely on account of the fact that the label thereon or the container thereof bears the legend "Guaranteed by (name of guarantor) under the Food and Drugs Act, June 30, 1906," or a serial number issued by the United States Department of Agriculture, or both, upon it being established that such label or container was so printed or marked prior to May 5, 1914.

Prosecutions Under Pure Food and Drugs Acts Reported During April, 1916.

Name of article	Offense	Accused dealer	Locality	Result
Acid aceto-salicylic	Adulterated and mislabeled	Eagle Drug Co.	Los Angeles	Fined \$30.00.
Aspirin	Adulterated and mislabeled	A. Sanguineti	San Francisco	Fined 25.00.
Catsup	Adulterated and mislabeled	Geo. Samaka	San Francisco	Fined 5.00.
Catsup	Adulterated and mislabeled	I. Sugiyami	Los Angeles	Fined 5.00.
Oatsup	Adulterated and mislabeled	Togo Restaurant	San Francisco	Fined 5.00.
Chopped meat	Contained sulfur dioxide	Wing Sung Co.	Stockton	Fined 100.00.
Chopped meat	Contained sulfur dioxide	Wing Sung Co.	Stockton	150 days in jail (suspended).
Cottage cheese	Adulterated and mislabeled	E. C. Draper	Los Angeles	Fined \$10.00.
Condiments	Adulterated and mislabeled	Simon Bros.	San Francisco	Fined 25.00.
Eggs	Adulterated and mislabeled	Motta Bros.	San Leandro	Fined 10.00.
Eggs, frozen	Adulterated and mislabeled	I. L. Hillman	San Francisco	O. R. 6 months.
Gin	Adulterated and mislabeled	New Gas Kitchen	Oakland	Fined \$10.00.
Noodles	Adulterated and mislabeled	Canton Noodle Factory	San Francisco	Fined 5.00.
Noodles	Adulterated and mislabeled	Republic Noodle Factory	San Francisco	Fined 5.00.
Noodles	Adulterated and mislabeled	Republic Noodle Factory	San Francisco	Fined 5.00.
Noodles	Adulterated and mislabeled	Hong Kong Noodle Factory	San Francisco	Fined 5.00.
Sausage	Adulterated and mislabeled	Sang Sang & Co.	Oakland	Fined 10.00.
Sausage	Adulterated and mislabeled	Gee Sang & Co.	Oakland	Fined 10.00.
Sausage	Adulterated and mislabeled	H. N. Edlin	San Francisco	Fined 10.00.
Sausage, bologna	Mislabeled. Contained cereal	A. A. Halverson	Santa Clara	Fined 15.00.
Sausage, frankfurter	Mislabeled. Contained cereal	A. A. Halverson	Santa Clara	Fined 15.00.
Sausage, pork	Mislabeled. Contained cereal	A. A. Halverson	Santa Clara	Fined 20.00.
Water, mineral	Adulterated and mislabeled	Dr. N. A. Schutz	Long Beach	Fined 25.00.

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Cases Referred to District Attorneys, April 1, 1916.

Name of article	Offense	Accused dealer	Locality
Acid acetyl-o-salic --	Adulterated and mislabeled. Other material for aspirin.	Substitution of Eagle Drug Co., K. Iseri and S. Yamamoto, Props.	Los Angeles.
Acid acetyl-o-salic --	Adulterated and mislabeled. Other material for aspirin.	Substitution of B. S. Levin (Guarantor)	Los Angeles.
Aspirin tablets --	Adulterated and mislabeled. Other material for aspirin.	Substitution of B. S. Levin (Guarantor)	Los Angeles.
Aspirin tablets --	Adulterated and mislabeled. Other material for aspirin.	Substitution of A. D. Davidson & Co.	Los Angeles.
Catsup† --	Adulterated and mislabeled. Other material for aspirin.	Substitution of Quaker Drug Store, A. A. Shaw, Prop.	San Francisco.
Catsup --	Adulterated and mislabeled. Other material for aspirin.	Substitution of California Supply Co. (Guarantor)	San Francisco.
Catsup --	Adulterated and mislabeled. Consists of filthy, decomposed vegetable substance.	Substitution of California Supply Co.	San Francisco.
Catsup --	Adulterated and mislabeled. Consists of filthy, decomposed vegetable substance.	Substitution of Doree Grill, Geo. Cazouraky, Prop.	San Francisco.
Catsup --	Adulterated and mislabeled. Consists of filthy, decomposed vegetable substance.	Substitution of Majestic Restaurant, Steve Gowmas & Co., Prop.	San Francisco.
Catsup --	Adulterated and mislabeled. Consists of filthy, decomposed vegetable substance.	Substitution of The Salvage Co., J. Greenberg, Mgr.	Oakland.
Catsup --	Adulterated and mislabeled. Filthy, decomposed vegetable substance.	Substitution of Sugarman, Greenberg & Co.	San Francisco.
Chili sauce --	Adulterated and mislabeled. Filthy, decomposed vegetable substance.	Substitution of Sugarman, Greenberg & Co.	San Francisco.
Chili sauce --	Adulterated and mislabeled. Filthy, decomposed vegetable substance.	Substitution of Sugarman, Greenberg & Co.	San Francisco.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Acktaion Restaurant	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Alameda Coffee Parlor, S. Nielsen, Prop.	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Jno. Angelopoulos	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Jim Ares	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of E. Lawrence	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Jno. Loris	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of M. Mantis	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Mee Gin Restaurant	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Navajo Market	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Harry Pappas	Sacramento.
Chopped meat --	Adulterated. Contained sulfur dioxid.	Substitution of Quick Lunch Room, Geo. Rotas, Prop.	Sacramento.

Cases referred to District Attorneys, April 1, 1916—Continued.

Name of article	Offense	Accused dealer	Locality
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Chopped meat* -----	Adulterated.	Contained sulfur dioxid.	Sacramento.
Cocktail sauce -----	Adulterated and mislabeled.	Filthy, decomposed vegetable substance.	San Francisco.
Cottage cheese -----	Adulterated and mislabeled.	Deficient in cream.	Los Angeles.
Eggs -----	Other materials substituted for cheese and cream.	Other materials substituted for cheese and cream.	Los Angeles.
Eggs, frozen -----	Adulterated and mislabeled.	Decomposed and putrid animal substance.	Oakland.
Eggs, frozen† -----	Adulterated and mislabeled.	Decomposed and putrid animal substance.	Oakland.
Mustard, ground -----	Adulterated and mislabeled.	Decomposed and putrid animal substance.	San Francisco.
Veronal tablets -----	Adulterated and mislabeled.	Exhausted, inert material, infested with bacteria.	San Francisco.
		Substitution of other materials for veronal.	Los Angeles.

*Referred on six counts. †Referred on three counts.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES FOR APRIL, 1916.

By ANNA C. JAMMÉ, R.N., Director.

Definite action on preliminary educational requirements for admission to training schools for nurses was taken by the California State Board of Health at its regular meeting held April 1st. Heretofore these requirements have been in a sense permissive, but it has been recommended that candidates should have the equivalent of a high school education. Training schools, therefore, have been steadily raising their educational standard, and from a survey recently made it was found that in 74 schools having 2,465 students, 848 were graduates of a college or high school; 278 had spent three years in high school, 435 two years, 308 one year, and 484 were grammar school graduates.

The question of outlining a definite preliminary course for students who contemplate pursuing the profession of nursing has been under consideration for some time. Conferences have been held with the State Board of Education, the Commissioner of Secondary and Vocational Education, with city superintendents of schools and principals of high schools with a view of working co-operatively with the state educational system and giving strength and definiteness to the scientific courses in the high school and in the training school.

The result of these conferences has been to recommend to the State Board of Health the following prerequisite for entrance to training schools for nurses:

After September 1, 1918, for admission to an accredited school for nurses, applicants must present evidence of having completed a four-year course in a standard accredited high school or other institution of standard secondary grade. There must be included in the four-year high school course, English, 4 years; chemistry, 1 year; household arts and home sanitation, 2 years; biology, 1 year. It is also recommended that students contemplating entering schools for nurses should, when possible, in addition to the above prerequisites, take physics, 1 year; sociology, 1 year; and one foreign language, French, German, or Spanish.

This recommendation was adopted at the meeting held April 1st, and will go into effect two years hence, September 1, 1918. Notification of this action was sent to Mr. Will C. Wood, Commissioner of Secondary Education, who will make it known to the principals of high schools throughout the State. This action of the board marks an important point in the future education of nurses in California, and sets a standard for an intelligent and efficient service, not only in the care of the sick and dependent, but in the work of prevention of sickness and dependence. The nurse has been a necessary factor in the social work of the state, and it is now keenly realized that her fundamental education must be put on a solid basis upon which to build her professional training. Without a knowledge of the scientific principles underlying every step of her training and every detail of her study in the hospital, she can not put into her work the intelligence, character and foresight which that work must have and which must be demanded by the people of our State.

ANNUAL CONVENTION NATIONAL ORGANIZATION OF NURSES.

The director of the Bureau of Registration of Nurses made a trip to New Orleans to attend the Annual Convention of the National Organization of Nurses, April 27th to May 5th. It was a long journey, but richly repaid the time and labor expended.

The three national organizations, namely, American Nurses Association, League of Nursing Education, and Organization for Public Health Nursing have reached a point of remarkable development. In the ten days of conferences, many phases and problems requiring consideration and action were entered into with deep interest and a sense of their importance in public welfare.

This large assembly represented a membership of 3,000 nurses, approximately 700 delegates being gathered together from every state, bringing with them the reports of work carried on in their separate states.

The dominant factor of the gathering was eagerness to obtain information and to carry back to each state a message of helpfulness for the coming year. Association politics and entertainment had little place in the day's work. Unlike many conventions, there were no office-seekers, and the meetings adjourned with the utmost good-will prevailing and with the commendation of the people of New Orleans on the high character of the program and general management of the various sections.

One of the most important features, and the one that took the director to New Orleans, was the special section on legislation. For fifteen years the states have been acquiring their legislative enactments, and now forty-four states have laws governing the registration or licensing of nurses. These laws, in the main, are related, but leave the requirements for accredited training schools open to the discretion of the boards of examiners of each state. In the question of reciprocity there is a matter for conflict, owing to the lack of uniformity in these requirements. The necessity of establishing a standard of minimum requirements throughout the United States has been apparent. The three conferences of this legislative section were devoted to this question of standardization, which involves preliminary requirements, methods of inspection of training schools and of examination of applicants for license or registration.

The result was the establishment of a central committee which will work on this problem, and it is anticipated that in the course of a year it will be able to present a plan for a uniform standard of preliminary education, professional training and examination that will be adapted to each state. This will give definite meaning to reciprocity between states and establish a definite status for a registered or licensed nurse in the United States.

The director feels that much has been gained by her presence in New Orleans, not only by what she has received, but also by what she has been able to carry to others of the work in California and of the appreciation and co-operation of the forces in the State, that are aiding materially in the building up of nursing education which in turn will mean increased public health efficiency.